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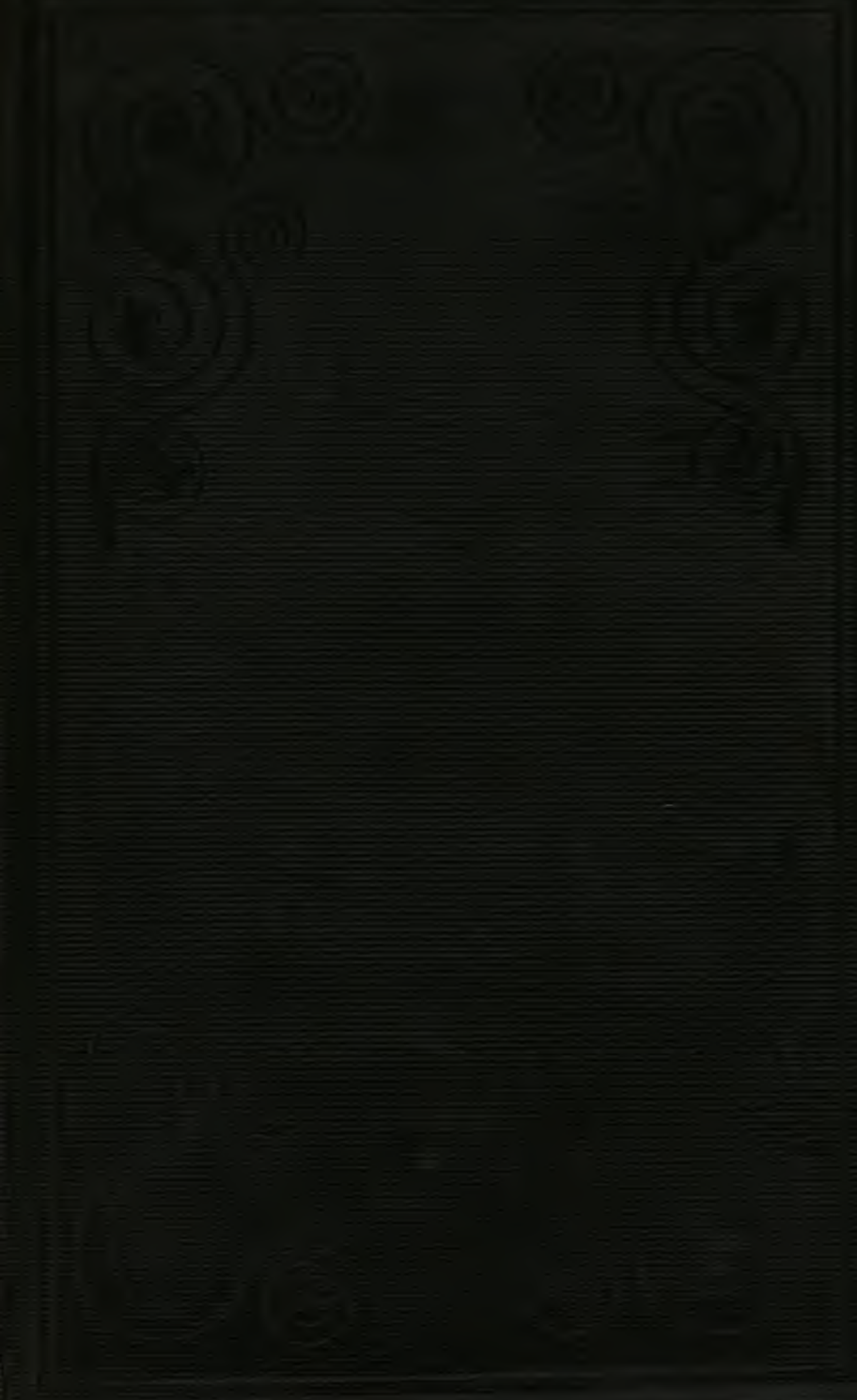

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A CRITICAL EXAMINATION OF THE TWELVE RESOLUTIONS OF MR. JOSEPH HUME,

RESPECTING

THE LOAN OF FIFTEEN MILLIONS FOR SLAVE COMPENSATION:

ALSO,

A REVIEW OF THE FINANCIAL OPERATIONS OF THE BRITISH GOVERNMENT SINCE 1794;

AND

AN INTRODUCTORY DISCOURSE ON THE NATURE OF ANNUITIES, AND ON THE OBSTACLES INTERPOSED BY THE CORN-LAWS AND THE ENGLISH SYSTEM OF CURRENCY TO A REDUCTION OF THE INTEREST ON THE NATIONAL DEBT.

BIBLIOTHECA BODLEIANA

BY RICHARD PAGE.

> " Une grande vérité approfondie vaut mieux que la découverte de mille mensonges."
>
> VOLTAIRE.

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ERRATA.

Page 32, line 10 from bottom, *for* 86,848*l.* *read* 86,407*l.*
,, 96, ,, 13 from bottom, *for* 3 per cents. *read* 3½ per cents.
,, 115, ,, 12, 15, and 24, *for* 15,614,157*l.* *read* 15,615,511*l.*
,, 115, ,, 28, *for* 493,773*l.* *read* 483,773*l.*
,, 194, ,, 12 from bottom, *for* reduced *read* redeemed.
,, 236, ,, 2 from bottom, *for* general *read* several.
,, 253, ,, 11 from bottom, *for* 1⅓ *read* 3⅓.

INTRODUCTION.

The present work was begun in the autumn of 1835, and all the calculations relating to Mr. Hume's resolutions were finished in the beginning of the year 1836.

Finding, from the results of these calculations, that the resolutions of Mr. Hume reposed on sound and solid principles and presented large views of things, we were induced to give greater extension to the inquiry, and, bestowing much thought and careful reflection on the matter, we have continued our labours from time to time as we could find leisure from other avocations, till at length we put the last hand to the undertaking in the beginning of 1839.

It appears that the first suggestion of Mr. Hume was, that there should be no loan whatever, but that the slave compensation should be defrayed by means of a payment in 3½ per cent. stock at par. The advantages resulting from a payment of this nature would have been very great; and indeed the whole case here, as we have shown, is so manifest at first sight, that there is not the least place for doubt or controversy.

This suggestion was rejected, but not *in toto*, for the slave-owners of the Mauritius, the Cape of Good Hope, Barbadoes, &c., were compensated by means of a payment in 3½ per cent. stock at the market-price of the day, which, being somewhat, though not considerably, below par, the advantage is not quite so great as would have resulted if the suggestion of Mr. Hume had been adopted simply and in its full integrity.

And here it must be noted that, if the suggestion of Mr. Hume had been adopted in its full extent, and that no payment whatever had been made in money, but that the whole of the slave compensation had been defrayed by means of new 3½ per cents. at par, the disadvantage to the planters as compared with a payment in money would have been only 11*s*. 6*d*. per cent.; but if the whole compensation had been made in 3½ per cent. reduced at the price charged to the island of Barbadoes, there would have been a gain to the planters as compared with a payment in money of 3*s*. 2*d*. per cent.; and that if the whole compensation had been made in 3½ per cent. reduced at the price charged to the Cape of Good Hope, the Mauritius, &c., the loss to the planters as compared with a payment in money would have amounted to only 9*s.* 8*d.* per cent. All which we have shown at the end of the work. And therefore, merely by attending to sound principles, a most enormous sum would have been saved to the public, and yet the difference to the slave-owners would have been so trivial as to be altogether undeserving of regard.

This as respects the first suggestion of Mr. Hume, and the adoption of it in part, in the payments made to the Island of Barbadoes, the Cape of Good Hope, &c. But the great payment was to be made to the Island of Jamaica, and this the government resolved to make in money, and to raise this money by loan in 3 per cent stock, with the addition of a portion of long annuity; and, to this, Mr. Hume objected that, supposing it necessary to raise the money by loan (which it was not), still this ought not to have been done in 3 per cents. but in 3½ per cents.; and this objection forms the groundwork of his resolutions, and is the occasion of our present inquiry.

The foundation of Mr. Hume's resolutions is the probability of a reduction of the 3½ per cents. to 3 per cent.; and when we reflect that previous to the French revolution the Dutch 2½ per cents. were considerably above par, it seems to us unquestionable that a period will arrive when there will be a reduction of the 3½ per cents.; and therefore the greater or less comparative advantage resulting from a loan in 3½ per cents. as proposed by Mr. Hume will depend upon the longer or shorter period of time that shall elapse before the reduction takes place, and the price at which it is effected.

Now the reduction of stock of a higher, into one of a lower denomination, depends upon the price of the latter. When the 3 per cents. are at par, it is quite easy to reduce the 3½ per cents. at the same price. And if even the 3 per cents. should be somewhat below par, but with a good market and a toward state of things, it would still be very practicable to make the reduction at par. This was manifest in 1830, when upwards of 150,000,000*l.* of 4 per cents. were reduced to 3½ per cents., and this notwithstanding the price of the 3½ per cents. was below par. In brief, it may, we think, be laid down as an axiom, that, with a fair and ordinary market, the conversion of stock of a higher into one of a lower denomination may always be accomplished at the market-price of the lower denomination, and in many cases at a somewhat higher price.

Respecting the facts of the case in the present instance, they stand thus:—During a part of the year 1838 the price of the 3 per cents. was above 94, and there seemed good ground for calculating on a further considerable rise, and so as to render it practicable to convert the 3½ per cent. reduced into 3 per cents. This would have set the question as regards Mr. Hume's resolutions at rest: for though, from the circumstance of his projected loan being in new 3½ per cents., there could legally have been no reduction of this stock till 1840, yet the very fact of the conversion of the 3½ per cent. reduced would have established the soundness of the principle on which he had proceeded: it being evident of itself that, if one 3½ per cent. stock may be reduced to 3 per cent., another 3½ per cent. stock may be made to undergo the same reduction, and that consequently (no adverse circumstances intervening) the new 3½ per cents. would be reduced in 1840 after the expiration of the guarantee.

But the defective harvest of 1838 prevented a further rise in the price of stock, and the derangement of the currency consequent on the proceedings of the Bank of England and the joint-stock banks will prevent a reduction of the 3½ per cent. reduced in the present year, 1839, and it must therefore be deferred to a future opportunity. In the mean time this state of things does not in the least affect the case of Mr. Hume's resolutions; for, his loan being in new 3½ per cents., and this stock being guaranteed against redemption till 1840, it is evident that no reduction can take place before that period, however favourable the circumstances. And therefore it is only after 1840 that judgment is to be made of Mr. Hume's resolutions, and whatever takes place before that time is of no consequence whatever. And indeed, as Mr. Hume, by his resolutions, gives a guarantee against a reduction of interest for 15 years, nothing, strictly speaking, can affect his case that takes place before the year 1850. But we have shown, in the body of the work, that in this respect Mr. Hume is in error, and that he might easily have obtained a loan in new 3½ per cents at the price stated in the resolutions, without any other guarantee than that of 5 years, which the stock already possessed.

That there will be a reduction of the 3½ per cents. to 3 per cent. within a few years appears to us highly probable, and it is not unlikely that at a more remote period there will be a reduction of the whole of the permanent debt to a 2½ per cent. stock. In this, however, there will be greater difficulty, arising from two causes.

1. The nature of our system of currency, which, allowing not only the Bank of England, but all other private individuals and bodies of men, to create and issue just as much paper as they please, there is so much of change, alternation, and vicissitude, that it is difficult for things to remain a sufficient length of time in the same bent and bias to allow of so large an undertaking as the reduction of the whole of our permanent debt to a 2½ per cent stock.

2. The second obstacle to a reduction of the permanent debt to a 2½ per cent. stock is to be found in the corn-laws; and these operate three ways.

First, by narrowing and limiting the market for the products of our manufacturing industry, they lower profits and wages, and so diminish the income of the community, and this both absolutely and proportionally. There is less trade, and this trade is carried on at a reduced rate of profit, and so that, to all the extent of the diminution of trade, our absolute income is diminished at the same rate of profit, and, to all the extent of the lowering of profit, our proportional income is diminished upon the same amount of trade. Or otherwise, thus, by the mere extension of trade consequent on the repeal of the corn-laws, there would be an increase in the total income of the community if even there should be no rise in the rate of profit. And by a rise of profits there would be an increase in the income of the community, if even there should be no extension of trade. How great then must be the increase of income, when, consequent on a repeal of the corn-laws, there would be both a rise of profits and an extension of trade!

Secondly, the corn-laws cause an addition to the Government taxes, and this in two ways.

1. By increasing the expenditure of the government in their purchases of provisions for the army and navy. This increase amounts to a considerable sum even in time of peace, and in war it would be enormous.

2. By rendering all government in Ireland impracticable, except by means of a military force, which is the occasion of taxes; or the jobbing expenditure of large sums of money for the prosecution of what are called public works; and this again is the occasion of taxes.

Now that this proceeds from the corn-laws may very easily be made appear, for it must be plain, to every one who will but for a moment turn his reflections on the matter, that the alone original cause of the distress of the Irish peasantry, and which, in very fact, occasions more misery to be crowded into one single province of Ireland than in all the rest of Europe put together, is the excessive competition for land; and for this there neither is nor can be but one remedy, and that is to increase the quantity. Now this would immediately be accomplished by a repeal of the corn-laws: for, as to import corn is virtually to import the land which produced that corn, so is it clear that every importation of corn or food of any description is a virtual addition to the productive soil of the country.

And therefore, as the more corn we imported in return for our manufactures, the greater virtually would be the quantity of land imported, so the less also would be the competition for land, till at length there would be a considerable fall in the rent of land in Ireland, and the Irish peasant would rise in the scale of existence and be happy.

The evil, therefore, being in the competition for and consequent high rent of land, and as this evil can only be removed by a repeal of the corn-laws, so is it of plain consequence that, as long as these laws exist, Ireland must be ruled by plain downright force, or by a variety of miserable tricks and expedients all terminating in a waste of money, a corruption of manners, and the total perversion of all sound public principle. To this pass, therefore, are things come, that, in order to benefit a small knot of haughty, unfeeling, rapacious landlords, the well-being of millions is disregarded, famine and misery stalk through the land, and all good government in Ireland is impossible.

Thus have we stated two things in which the corn-laws are prejudicial;—the first, that they diminish the income of the community,—the second, that, by increasing the expenditure of the government, they lead to the necessity of additional taxation. The third and last thing to be noticed is the heavy tax imposed by the corn-laws in the enhanced price of food, the consequence of which is, that, so large a portion of the labour and income of the community being expended in the acquisition of the bare necessaries of life, there remains less for other purposes, and the less, by consequence, is the power to pay the taxes of the government.

And therefore, as, while the corn-laws increase the public burdens, they not only diminish the income of the community, but also render that income less productive, it is impossible for the wit of man or devil to devise a scheme of things more essentially pernicious and deadly destructive of the best interests of society. And as regards the present question, by increasing the expenditure of the government, and rendering its income uncertain and precarious, it must necessarily have great and sinister influence on all operations of finance, and so as to render the reduction of the whole of the permanent debt to 2½ per cent. a matter of great doubt and difficulty.

But repeal the corn-laws, and every other law that interferes with the admission and supply of food, and so great and unlimited would be the prosperity of the country, so flourishing the revenue under almost any scheme of taxation, so boundless the resources of the Government, and so superior its credit to all private credit, that the period would soon arrive when the 3 per cents. would be reduced to 2½ per cent., and that it even would be quite easy to float 20,000,000*l.* or 25,000,000*l.* of unfunded debt at 2 per cent. interest.

These laws are not to be vindicated upon any principle of reason and equity. As against the foreigner the British landlord cannot pretend that he has a right to protection upon the ground of his being more heavily taxed; for, quite the reverse, his burdens comparatively are a mere song, and it is most certain that the landed interest of this country is less heavily taxed than the same interest in any other part of Europe.

As little can he lay claim to protection upon the score of his sustaining peculiar burdens which are not borne by the rest of the British community. For here the matter stands this way:—There is no tax, either public or local, paid by the landed interest, which is not also paid by the other classes of the community. There are certain taxes, both public and local, paid by the other classes, which are not paid by the landed interest. And of the public taxes, which are common to all classes, the landed interest pays at least 4,000,000*l.* per annum short of its fair proportion.*

And, therefore, as the landlords can show no title to protection upon the score of peculiar burdens, either as against foreigners or their fellow-subjects, but that all the facts of the case run clean the other way, it is manifest that the corn-laws have no other foundation than greedy selfishness—the bold insolence and impudence of a knot of unprincipled men, who, by means of the defects of our electoral system, have acquired a power to which they naturally have no pretensions—gross tyranny and injustice.

But if even there were certain peculiar burdens to which the landed interest is subject, this is no argument in favour of the corn-laws; but the equity of the case would then require that these peculiar burdens should be removed.

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* See an article in the "Times" of the 2nd of April, 1834. See also the Speech of Mr. Hume in the House of Commons, on the 27th of April, 1836.

In sum, it is certain that, in consequence of the corn-laws, the general price of food in this country is double that of the continent, and, therefore, by means of these laws a most enormous tax is imposed, which, falling on articles that are indispensable to our very existence, is paid by all classes, and from which it is impossible that any human being can escape, except by leaving the country, or going out of the world. And that this tax is paid by the farmers and their labourers to the same, and probably a greater extent than by the other classes of the community, may be made out without much difficulty: for it is certain, we believe, that the income derived from any given amount of capital employed in agriculture is not greater than from the same capital when employed in trade and manufactures; and, therefore, the farmer suffers precisely to the same extent as the other classes, by the high price of food, and this because, a larger portion of his income being required for the mere necessaries of life, there remains less for conveniences, and luxuries, and amusements, and consequently he has fewer enjoyments.

If the profit on capital employed in agriculture is less than in trade and manufactures, then the farmer suffers more than the other classes by the operation of the corn-laws. For the effect of these laws being to reduce his income below the level of the other classes, either he must consume less, or a larger proportion of his income than of the other classes must be devoted to the acquisition of food.

This as regards the farmer. With respect to the agricultural labourers, it is most certain that the wages of their labour are lower than the wages of manufacturing industry; and then it is equally certain that they suffer more from the high prices of food than the workmen employed in manufactures. For it is a great truth, and holds universally, that every rise in the price of food falls with the greatest severity on those who are least able to bear it; and so that, precisely in the proportion that a man's income is small, and his poverty great, he is the more heavily taxed, and this, because the lower the income the greater is the proportion of that income which must be expended in the purchase of food. And therefore, to the man who has an income of 100*l*. per annum, and who spends half his income in the purchase of food, any law or regulation which doubles the price of food, will be equivalent to an income-tax of 25 per cent.; while to the poor labourer, whose wages are 10*s*. per week, and who must spend at least three-fourths in the purchase of food, and even then fare very badly, the tax is equivalent to 37½ per cent. on the amount of his wages. Horrid injustice![*] and well and truly is it said in holy writ, "The bread of the needy is his life: he that defraudeth him thereof is a man of blood."

Ireland, beyond any part of Europe, is a standing example of the influence of low profits and wages on the public revenue, and of the small power and resource derived to the state from a country which is purely agricultural, and where, at the same time, the price of food, and the rent of land, in consequence of cruel and unjust laws, is inordinately high.

The net produce of the revenue of Ireland, for the year ended 5 January, 1839, is 4,041,429*l.*, and the population may be taken in round numbers at 8,000,000; and, therefore, the net sum, clear of all charges and deductions, which the people of Ireland furnish to the state, is at the rate of 10*s.* 1*d.* a head.

The net produce of the revenue of Great Britain, for the same period, is 43,292,030*l.*, and the population may be taken in round numbers at 18,000,000; and, therefore, the net sum, clear of all charges and deductions, which the people of Great Britain furnish to the state, is at the rate of 2*l.* 8*s.* 1*d.* a head.

And now the cause of this difference? It is here: that Ireland having no resources in commerce and manufactures, and being purely agricultural, and yet the rent of land, in consequence of the corn-laws, being excessive, so large a portion of the produce of the soil goes as rent to the landlord, and so much labour and capital is again wasted in the cultivation of land which was never intended for the growth of corn, that there is but little left for the state.

Place Great Britain in the same circumstances; take away her manufactures and commerce, while the corn-laws remain in full force and operation, and you will have precisely the same state of things as in Ireland; and so very trivial and insignificant would be the produce of the revenue, that there would not be a shilling for the public creditor. In short, with the exception of the landlords, who would thrive by the ruin of the rest, there would be nothing but sheer, unmitigated misery from one end of the empire to the other.

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[*] The injustice will appear still more strongly if we consider that, in the case of an income-tax imposed by the government, all the small incomes are entirely exempted. But the tax on food being for the sole benefit of the landlord, and no part of it going to the government, but, on the contrary, the income of the government being thereby diminished, and its expenditure increased, the case is altered; and so far, in the judgment of the landlord, is the smallness of the income from being a plea for exemption, that the lower the income the greater in proportion is the tax.

This is also a great truth which we must never fail to take into the account: that in every country in the world, under all circumstances, and in every state of things, the interest of the landlord is in direct opposition to that of every other class of the community. For it is the interest of all the other classes that food should be cheap; but it is the interest of the landlord that food should be dear, in order that he may obtain a high rent, and which, as all rent is the effect of price, it is impossible for him to get by any other means.

The case then so standing, if we next consider that one branch of our legislature is, so to speak, composed entirely of landlords, and that, in the other, they have a preponderating influence, where is the chance that the government (whether Whig or Tory) ever will or can be carried on with a view to the true interests of the people.

It is impossible, under any circumstances whatever, that a country which is essentially agricultural can have the same wealth and resources as a country that is essentially commercial and manufacturing. But the greatest of all possible curses, and the source of the greatest public misery under the sun, is this: that while a country is essentially agricultural, and without resources in commerce and manufactures, there should nevertheless be a high price of food, and, consequently, a high rent of land. This is a picture of Ireland.

Thus much on the corn-laws and the currency: their influence on the wealth of the community, on the revenue, and on public credit, and the obstacles which they oppose to a reduction of the interest on the national debt.

And now, for the better understanding of the following work, it will be necessary that we discourse on the nature of annuities in general, and the principles by which they are governed.

To speak, first, of a perpetual annuity: here the principle is, that, by the employment at interest of the capital advanced in consideration of the annuity, the annuity may be paid for ever, and that the capital will always remain the same, and neither increase in amount nor diminish.

And this is true; but always on the supposition that the rate of interest shall continue the same as when the annuity was granted. But it no longer holds when there is a change in the rate of interest. If this change should be a decline from the rate which regulated the grant and amount of the annuity, the grantor of the annuity will suffer loss, and the capital by means of which the annuity was to be defrayed for ever will be exhausted in a certain period, according as the decline is small or considerable. If, on the contrary, the rate of interest should advance, there will be a gain to the grantor of the annuity, and the capital which was to provide for the payment of the annuity will not only do this for ever, but itself also will continue for ever to increase, and this according as the advance in the rate of interest is small or considerable.

This as regards a perpetuity. A temporary annuity is ruled by this principle: that an annuity for a certain number of years, being granted at a certain rate of interest, if the rate of interest continues without alteration to the end of the term, the capital advanced in consideration of the annuity will exactly suffice to defray the annuity to the end of the term, and then be exhausted. But if the rate of interest should advance, it will more than suffice, and there will be a profit to the grantor of the annuity. If, on the contrary, there should be a fall in the rate of interest, the regular payment of the annuity will exhaust the capital before the end of the term, and the grantor of the annuity will suffer loss.

The loss or gain to the grantor of an annuity at every particular instant of time is always measured by the value of the annuity at the price of the day, as compared with its value at the price of the original contract. For as the interest to be made by means of an annuity is according to the price of that annuity, and that the loss or gain to the grantor of an annuity derives from the defect or excess of the present rate of interest as compared with the rate of interest which obtained at the period of the original grant, so is it clear that at every moment of time his loss or gain is measured by the price of the annuity. And therefore, the rate of interest being 4 per cent., if any one in consideration of the present payment of 2000*l.* should grant a perpetual annuity of 80*l.*, it is evident that, so long as interest remained at this rate, he would neither gain nor lose, but if interest should advance to 5 per cent., and so continue for ever, he would gain 400*l.*, because, the rate of interest, being 5 per cent., the value of the perpetual annuity of 80*l.* which he has granted is only 1600*l.*, and, he having received 2000*l.*, there is a profit of 400*l.*

If, on the contrary, the rate of interest should decline to 3 per cent., and so continue for ever, the total loss of the grantor of the annuity would be 666*l.* 13*s.* 4*d.*; his annual loss would be 20*l.*, and the capital of 2000*l.* which he originally received, instead of sufficing for the payment of an annuity of 80*l.* for ever, would be annihilated in about 47 years,—that is, dating from the decline in the rate of interest. And therefore if interest should continue at 4 per cent. during 10 years after the grant of the annuity, then decline to 3 per cent., and so remain for ever after, as during the first ten years there would be neither loss nor gain, so if we make the loss to the grantor a present value dating from the first grant of the annuity, this loss would resolve itself into the value of a perpetual annuity of 20*l.* deferred for 10 years, and which value, interest being at 4 per cent. during 10 years, and 3 per cent. for ever after, is 450*l.* 6*s.* 8*d.* We say this would be his loss, because this sum, put out to compound interest during 10 years at 4 per cent., and yearly payments, would, at the end of the period, constitute a capital of 666*l.* 13*s.* 4*d.*, and which, at 3 per cent., would purchase a perpetual annuity of 20*l.*, which is precisely the amount of the annual loss.

If, on the contrary, the rate of interest immediately after the grant of the annuity should rise to 5 per cent., and so continue for 10 years, then fall to 4 per cent., and so remain for the following 10 years, and then fall to 3 per cent., and so continue for ever: then, as there would first be a gain of 20*l.* per annum during the first 10 years, then in the second 10 years there would be neither gain nor loss, and that finally, after the lapse of 20 years there would be a loss of 20*l.* per annum for ever: so, if we strike out of the account the second period, in which there is neither gain nor loss, it is evident that the loss to the grantor of the original annuity of 80*l.* is the present value of a perpetual annuity of 20*l.*, to commence at the end of 20 years, *minus* the present value of an annuity of 20*l.* for 10 years, to commence immediately.

Now, interest being 5 per cent. during 10 years, 4 per cent. during the following 10 years, and thereafter 3 per cent. for ever, the value of a perpetuity of 20*l.* deferred for 20 years is £276 9 11

This is the first value. The second value, which is to work a mitigation of the loss, is the present value of an annuity of 20*l.* for 10 years, and which interest, being 5 per cent., is 154 8 8

Remains loss £122 1 3

And therefore the loss to the grantor of the annuity, by the changes and fluctuations in the rate of interest, is 122*l.* 1*s.* 3*d.*, and this loss dates from the grant of the annuity.

Take a few more cases, founded on the same annuity.

If interest should fall to 3 per cent., and so continue during the first 10 years, then rise to 4 per cent., and so remain for the following 10 years, and then rise to 5 per cent., and so continue for ever, there will be a gain to the grantor of the annuity, and this gain will consist in the present value of a perpetual annuity of 20*l.*, to commence at the end of 20 years, *minus* the present value of the annuity of 20*l.* for 10 years, to commence immediately.

Now, the rate of interest being 3 per cent. during 10 years, 4 per cent. during 10 years, and 5 per cent. for ever after, the first value is £201 1 6

And, interest being 3 per cent., the second value is 170 12 1

Remains gain £30 9 5

If interest should continue at 4 per cent. during the first 10 years, then rise to 5 per cent., and so remain during the following 10 years, then fall to 3 per cent., and so continue for ever, there will be a loss to the grantor of the annuity, and this loss will consist in the present value of a perpetual annuity of 20*l.* deferred for 20 years, *minus* the present value of an annuity of 20*l.* for 10 years, deferred for 10 years.

Now, the rate of interest being 4 per cent. during 10 years, 5 per cent. during another 10 years, and 3 per cent. for ever after, the first value is £276 9 11

And, interest being 4 per cent. during the first 10 years, and 5 per cent. during the following 10 years, the present value of an annuity of 20*l.* for 10 years, to commence at the end of 10 years, is 104 6 7

Remains loss £172 3 4

If interest should rise to 5 per cent., and so continue during the first 10 years, then fall to 3 per cent., and so remain for the succeeding 10 years, and then rise to 4 per cent., and so continue for ever, there will be a gain to the grantor of the annuity, and this gain will consist in the present value of an annuity of 20*l.* for 10 years to commence immediately, *minus* the present value of an annuity of 20*l.* for 10 years deferred for 10 years.

Now, the rate of interest being 5 per cent., the first value is £154 8 8

And, the rate of interest being 5 per cent. during the first 10 years, and 3 per cent. during the following 10 years, the second value is . . 104 14 9

Remains gain . . . . £ 49 13 11

If interest should fall to 3 per cent., and so continue during the first 10 years, then rise to 5 per cent., and so remain during the following 10 years, and then fall to 4 per cent., and so continue for ever, there will be a loss to the grantor of the annuity, and this loss will consist in the present value of an annuity of 20*l.* for 10 years to commence immediately, *minus* the present value of an annuity of 20*l.* for 10 years to commence at the end of 10 years.

Now, interest being 3 per cent., the first value is £170 12 1

And, interest being 3 per cent. during the first 10 years, and 5 per cent. during the following 10 years, the second value is £114 18 3

Remains loss . . . . £ 55 13 10

We might multiply cases, but the preceding are sufficient to exemplify the principle which regulates the loss or gain to the grantor of an annuity. That this matter may however be exhibited in many lights, we will now set down three different annuities, and show the manner and measure in which they are affected by variations in the interest of money.

The rate of interest being 4 per cent., the sum of 1000*l.* will purchase an annuity of 64*l.* 0*s.* 3*d.*, terminable in 25 years.

At the same rate of interest, the same sum of 1000*l.* will purchase an annuity of 40*l.* 16*s.* 2*d.*, terminable in 100 years.

And, finally, at the same rate of interest the same sum of 1000*l.* will purchase a perpetual annuity of 40*l.*

Let these three annuities be granted at the same time, and immediately thereupon let the rate of interest sink to 3 per cent., and so remain for ever after. We shall then have the following state of things:—

The rate of interest being 3 per cent., the value of the annuity for 25 years is 1114*l.* 13*s.* 1*d.*, and the grantor having received only 1000*l.*, his loss is 114*l.* 13*s.* 1*d.*, and the 1000*l.* which he has received in consideration of the annuity will be exhausted in between 21 and 22 years, which is between 3 and 4 years before the expiration of the annuity.

At the same rate of 3 per cent., the value of the annuity for 100 years is 1289*l.* 9*s.* 11*d.* Here therefore the loss to the grantor of the annuity is 289*l.* 2*s.* 11*d.*, and the 1000*l.* which he has received in consideration of the annuity will be exhausted in about 45 years, which is 55 years before the expiration of the annuity.

And, finally, at the same rate of interest, the value of the perpetual annuity is 1333*l.* 6*s.* 8*d.* Here therefore the loss to the grantor of the annuity is 333*l.* 6*s.* 8*d.*: the 1000*l.* which he has received in consideration of the annuity will be exhausted in about 47 years,—and thenceforward and for ever he will have to pay 40*l.* per annum out of his own resources.

And therefore the sum to be received being fixed and defined, and the same in each several case, the loss by the fall in the rate of interest to him, who, in consideration of this sum, has granted an annuity according to the ruling rate of interest at the time of the grant, will be in a ratio with the duration of the annuity; and in all cases whatsoever this loss resolves itself into, and is measured by, the difference between the present value of the annuity at the actual rate of interest as compared with the rate of interest at which it was originally granted. And as, at any given difference between two rates of interest, the difference between the present value of an annuity increases with every increase in the term of its duration, so is it first clear that the difference of value arising from a difference in the rate of interest will be greatest in the perpetuity, and that in annuities for terms of years the difference will be in proportion to their duration.

This is also of note and observation: that, the lower the respective rates of interest in which the same difference takes place, the greater will be the loss or gain (as the case may apply) to the grantor of the annuity. And therefore, if an annuity were granted when interest was 3 per cent., and the rate should decline to 2 per cent., the loss would be greater than, if granted at 4 per cent., the rate should decline to 3 per cent.; and still greater than, if granted at 5 per cent., the rate should decline to 4 per cent. And contrariwise, the gain is greater by a rise from 2 to 3 per cent. than from 3 to 4 per cent., and so of the rest.

The reason of which is manifest if we consider that at 2 per cent. the value of the perpetuity is 50 years' purchase; at 3 per cent., 33$\frac{1}{3}$ years; at 4 per cent., 25 years; at 5 per cent., 20 years; and that, as the rate of interest advances, the difference in the value of the perpetuity diminishes, and in the value of annuities for terms of years in the same proportion and according to their duration.

Thus much as regards annuities, and the principles by which they are governed; and, as between an annuity granted by an individual and the same annuity when granted by a government there is in nature no difference, and that both rely on the same principle; and as if, after having granted an annuity answerable to a certain rate of interest the rate should decline, an individual would suffer loss unless he should be able to reduce the amount of the annuity in proportion to the reduction in the rate of interest: so in like manner does a government suffer loss, if, after having granted an annuity, there is a reduction in the rate of interest, and that it should not be able to abate the annuity in proportion to this reduction.

Being therefore that the same loss or gain results to a government as to an individual from variations in the rate of interest; and being also (provided the rate of the original contract remains fixed) that this loss or gain is greater on a perpetual annuity than on annuities for terms of years when the money is borrowed at par, and that no additional capital is created, it will not be improper that we now consider the respective results of a loan partly in various temporary annuities, and partly in a perpetual annuity issuing from stock of a low denomination, and created at a price below par.

Let then the rate of interest be 3½ per cent., and at this rate let the government borrow six millions of money in the following annuities.

£1,000,000 in an annuity terminable in 10 years.
1,000,000 in an annuity terminable in 25 years.
1,000,000 in an annuity terminable in 50 years.
1,000,000 in an annuity terminable in 75 years.
1,000,000 in an annuity terminable in 100 years; and
1,000,000 in a perpetual annuity issuing from capital in a 3 per cent. stock.

Everything will then stand after the following manner:—

The amount of the annuity for 10 years will be	£120,241
The amount of the annuity for 25 years will be	60,674
The amount of the annuity for 50 years will be	42,634
The amount of the annuity for 75 years will be	37,869
The amount of the annuity for 100 years will be	36,159

And the amount of the perpetual annuity will be 35,000*l.*, issuing out of a capital of 1,166,667*l.* (accurately 1,166,666*l.* 13*s.* 4*d.*) in 3 per cent. stock.

This being the state of things, and all temporary annuities being irredeemable, let us suppose, in the first instance, and for the purposes of exact comparison, that the permanent annuity is also irredeemable. Then let the rate of interest fall to 3 per cent. after 10 years, and so continue during 15 years; then fall again to 2½ per cent., and so remain for ever after.

All this laid down, we shall have the following position of things.

Annuity for 10 *years.*

As this annuity will become extinct at the very moment that the fall in the rate of interest takes place, and as during the period of its existence there was no variation in the rate of interest, and that the capital originally advanced will have exactly sufficed for its regular payment to the end of the term, so will there be neither loss nor gain.

Annuity for 25 *years.*

The first fall in the rate of interest taking place at the end of 10 years, when this annuity has 15 years to run, and when the second fall takes place at the end of 25 years, the annuity being extinct; so is it plain that the loss on this annuity is the difference in the value of an annuity of 60,674*l.* for 15 years, at the respective rates of interest of 3 and 3½ per cent.

Now this difference is 25,513*l.*, to be paid at the end of 10 years, the present value of which, interest being 3½ per cent., is 18,087*l.*

Annuity for 50 *years.*

The first fall in the rate of interest to 3 per cent. taking place at the end of 10 years, when this annuity has 40 years to run, and the second fall to 2½ per cent. at the end of 25 years, when it has 25 years to run, so is it visible that the loss on this annuity consists,—

First, in the difference in the value of an annuity of 42,634*l.* for 40 years, at the respective rates of interest of 3 and 3½ per cent.; and,

Secondly, in the difference in the value of the same annuity for 25 years, at the respective rates of interest of 2½ and 3 per cent.

The first difference is 75,019*l.*, to be paid at the end of 10 years, the present value of which interest being 3½ per cent., is £53,182

The second difference is 43,099*l.*, to be paid at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, and 3 per cent. during 15 years, is 19,611

Total loss . . £72,793

Annuity for 75 *years.*

When the rate of interest falls to 3 per cent., this annuity has 65 years to run, and when it again falls to 2½ per cent., it has 50 years to run; and, therefore, the loss on this annuity consists,

First, in the difference in the value of an annuity of 37,869*l.* for 65 years, at the respective rates of interest of 3 and 3½ per cent., and,

Secondly, in the difference in the value of the same annuity for 50 years, at the respective rates of interest of 2½ and 3 per cent.

The first difference is 111,146*l.*, to be paid at the end of 10 years, the present value of which interest being 3½ per cent., is £78,794

The second difference is 99,683*l.*, to be paid at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, and 3 per cent. during 15 years, is 45,359

Total loss . . £124,153

Annuity for 100 *years.*

When the rate of interest falls to 3 per cent., this annuity has 90 years to run, and when it again falls to 2½ per cent., it has 75 years to run; and, therefore, the loss on this annuity consists,

First, in the difference in the value of an annuity of 36,159*l.* for 90 years, at the respective rates of interest of 3 and 3½ per cent., and,

Secondly, in the difference in the value of the same annuity for 75 years, at the respective rates of interest of 2½ and 3 per cent.

The first difference is 134,624*l.*, to be paid at the end of

10 years, the present value of which, interest being 3½ per per cent., is £95,438

The second difference is 145,366*l.*, to be paid at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, and 3 per cent. during 15 years, is 66,145

Total loss . . . £161,583

Perpetual Annuity.

The duration of this annuity being infinite, and, therefore, the same at whatever period after its creation a change takes place in the rate of interest, it is manifest, in the present instance, that the loss on this annuity consists,

First, in the difference in the value of a perpetual annuity of 35,000*l.*, at the respective rates of interest of 3 and 3½ per cent.; and,

Secondly, in the difference in the value of the same annuity at the respective rates of interest of 2½ and 3 per cent.

The first difference is 166,667*l.*, to be paid at the end of 10 years, the present value of which, interest being 3½ per cent., is £118,153

The second difference is 233,333*l.*, to be paid at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, and 3 per cent. during 15 years, is 106,173

Total loss . . . £224,326

This, as regards the loss resulting from a decline in the rate of interest, and from which it will be seen that the loss is greater or less according to the duration of the annuity. There is no loss whatever on the annuity for 10 years: on the annuity for 25 years it is trifling: and out of the total loss of 600,942*l.*, the sum of 224,326*l.* is derived from the perpetuity, and so that the total sum borrowed being 6,000,000*l.*, the proportion which the whole of the loss bears to this sum is 10·02 per cent.; and the sum borrowed in perpetuity being 1,000,000*l.*, and the loss being 224,326*l.*, the proportion which this loss bears to the sum borrowed is 22·43 per cent.

There being so little difference, at the same rate of interest, between the value of a perpetuity and an annuity for 100 years, it seems, at first sight, rather strange that the loss on the one should be so much greater than on the other; but it should always be remembered that, when the first fall in the rate of interest takes place, the annuity of 100 years is curtailed to 90 years, and that when the second fall takes place it is farther curtailed to 75 years; and, therefore, the perpetuity is not compared with an annuity of 100 years, but with an annuity of 90 years, and subsequently of 75 years.

As in consequence of the loss on an annuity by a reduction in the rate of interest, the capital originally advanced as a consideration for the regular payment of the annuity becomes annihilated before the term of the annuity is expired, so if we would ascertain, in the present instance, the period at which the capital of 1,000,000*l.*, intended to defray the annuity of 36,159*l.* for 100 years, will be exhausted, we must state things after the following manner:—

The rate of interest at which the annuity was originally granted being 3½ per cent., the sum of 1,000,000*l.* will, at this rate, yield an annual income of 35,000*l.*, and the sum annually to be paid during 100 years being 36,159*l.*, the excess of annual payment over receipt is 1159*l.*, and which excess, at 3½ per cent. compound interest, would, in 100 years, exhaust a capital of 1,000,000*l.*, and so that, having defrayed the annuity to the end of the term, there would be no defect, neither would anything remain over, and, consequently, there would be neither profit nor loss.

At the same rate of interest, the excess of 1159*l.* in annual payment over receipt, will, at the end of 10 years, exhaust a capital of 13,597*l.*, which deducted from 1,000,000*l.*, leaves a capital of 986,403*l.* to defray an annuity of 36,159*l.* for 90 years.

But now, the rate of interest falls to 3 per cent., at which rate a capital of 986,403*l.* will yield an annual income of 29,592*l.*, and the sum annually to be paid, still being 36,159*l.*, the excess of annual payment beyond receipt, is 6,567*l.*, and which, interest being 3 per cent., will, in 15 years, exhaust a capital of 122,139*l.*, and which deducted from 986,403*l.*, leaves 864,264*l.* at the end of 25 years, as the capital wherewith to defray an annuity of 36,159*l.* for 75 years.

But, at the end of 25 years, interest falls to 2½ per cent., at which rate a capital of 864,264*l.* will yield an annual income of 21,607*l.*, and the sum annually to be paid still being 36,159*l.*, the excess of payment over receipt is 14,522*l.* And as after 25 years there is, by the hypothesis, no farther change in the rate of interest, the question simply is, in what period of time, the rate of interest being 2½ per cent., will an annuity of 14,522*l.*, annihilate a capital of 864,264*l.*? This we find to be 36·91 years (36 years 322 days), and the annuity having 75 years to run, the capital would be exhausted full 38 years before the expiration of the annuity.

Having considered the effect of a fall in the rate of interest, let us now take the converse of the proposition, and consider the effect of a rise. And the six annuities of which we have treated, having been granted when the rate of interest was 3½ per cent., let this still be the original rate of interest, and let it then be, that at the end of 10 years the rate of interest rises to 4 per cent., and so remains during 15 years, and that at the end of this period it again rises to 4½ per cent., and so continues for ever.

This state of things would of course leave profit; and which profit as it applies to the several and respective annuities is, we believe, distinctly set forth in the following particulars.

Annuity for 10 *years.*

It is with this annuity the same as in the former case, that being extinct when the change takes place in the rate of interest, there is neither gain nor loss.

Annuity for 25 *years.*

The first rise in the rate of interest takes place when this annuity has 15 years to run; and, therefore, the profit is the difference in the value of an annuity of 60,674*l.* for 15 years, at the respective rates of interest of 3½ and and 4 per cent., and which difference is 24,209*l.*, to be received at the end of 10 years, the present value of which, interest being 3½ per cent., is 17,162*l.*

Annuity for 50 *years.*

When the first rise in the rate of interest takes place, this annuity has 40 years to run; and when the second rise takes place, it has 25 years to run; and, therefore,

The first gain is the difference in the value of an annuity of 42,634*l.* for 40 years, at the respective rates of interest of 3½ and 4 per cent. This difference amounts to 66,611*l.*, to be received at the end of 10 years, the present value of which, interest being 3½ per cent., is . . . £47,222

The second gain is the difference in the value of the same annuity for 25 years, at the respective rates of interest of 4 and 4½ per cent. This difference amounts to 33,847*l.*, to be received at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, and 4 per cent. during 15 years, is 13,323

Total gain . . . £60,545

Annuity for 75 *years.*

When the rate of interest rises to 4 per cent., this annuity has 65 years to run; and when interest again rises to 4½ per cent., it has 50 years to run; and, therefore,

The first gain is the difference in the value of an annuity of 37,869*l.* for 65 years, at the respective rates of interest of 3½ and 4 per cent. This difference amounts to 93,582*l.*, to be received at the end of 10 years, the present value of which, interest being 3½ per cent., is . . . £66,342

The second gain is the difference in the value of the same annuity for 50 years, at the respective rates of interest of 4 and 4½ per cent. This difference amounts to 65,138*l.*, to be received at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, and 4 per cent, during 15 years, is 25,641

Total gain . . . £91,983

Annuity for 100 *years.*

When interest rises to 4 per cent., this annuity has 90 years to run; and when interest again rises to 4½ per cent., it has 75 years to run; and, therefore,

The first gain is the difference in the value of an annuity of 36,159*l.* for 90 years, at the respective rates of interest of 3½ and 4 per cent. This difference amounts to 108,915*l.* to be received at the end of 10 years, the present value of which, interest being 3½ per cent., is £77,212

The second gain is the difference in the value of the same annuity for 75 years, at the respective rates of interest of 4 and 4½ per cent. This difference amounts to 82,327*l.*, to be received at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, and 4 per cent. during 15 years, is . . 32,40

Total gain . . . £109,619

Perpetual Annuity.

The duration of this annuity being infinite, and, therefore, at all periods the same, so is it clear that when, at the end of 10 years, the rate of interest rises to 4 per cent., the gain thereon is the difference in the value of a perpetual annuity of 35,000*l.* at the respective rates of interest of 3½ and 4 per cent. This difference amounts to 125,000*l.*, to be received at the end of 10 years, the present value of which, interest being 3½ per cent., is £88,615

When, at the end of 25 years, interest further rises to 4½ per cent., the gain is the difference in the value of the same annuity, at the respective rates of interest of 4 and 4½ per cent. This difference amounts to 97,223*l.*, to be received at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, and 4 per cent. during 15 years, is 38,271

Total gain . . . £126,886

Upon a comparison, therefore, of the gain arising from the same absolute advance in the rate of interest with the loss arising from the same absolute decline, and this when applied to the same annuities, it appears that the loss exceeds the gain by 194,747*l.*; for the total of the loss amounts to 600,942*l.*, while the total of the gain amounts to only 406,195*l.*

But this only applies to present value, and to the circumstance that the loss or gain on the several annuities is made to revert to the period of their creation, and thereby to indicate the exact sum that would have sufficed to ensure the payment of the annuity to the end of the term. Whereas, if we look to the future, and then consider that the higher the rate the greater the sum to which any given capital will increase in a given term at compound interest; so shall we find that, at the end of the term of the annuity, the gain arising from any given absolute rise in the rate of interest will greatly exceed the loss which arises from the same absolute fall.

Thus, the gain in present value on the annuity for 100 years is 109,619*l.*; and which sum, at 3½ per cent. during 10 years, 4 per cent. during 15 years, and 4½ per cent. during 75 years, will increase in 100 years, to . . £7,560,087

On the other hand, the loss on the same annuity amounts in present value to 161,583*l.*, and which, interest being 3½ per cent. during 10 years, 3 per cent. during 15 years, and 2½ per cent. during 75 years, will increase in 100 years to 2,262,872

Difference . . . £ 5,297,215

The gain, therefore, at the end of the term, exceeds the loss by 5,297,215*l.*

And, therefore, starting from the same rate of interest, and moving in contrary directions, it holds universally, that, in present value, the loss by any given absolute fall in the rate of interest is greater than the gain by the same absolute rise. But, in future value, and carrying our views and calculations to the end of the term, the gain by any given absolute rise in the rate of interest is greater than the loss by the same absolute fall.

We have stated, that the profit on the annuity for 100 years at the end of the term is 7,560,087*l.*; and now, if we would ascertain the profit on this annuity progressively, and step by step, we must set down things after the following manner:—

At the original rate of interest of 3½ per cent., the sum annually paid being 36,159*l.*, and the sum annually received, 35,000*l.*, the difference, 1159*l.*, will, in 10 years, exhaust a capital of 13,597*l.*, and which deducted from 1,000,000*l.* leaves a capital of 986,403*l.* to defray an annuity of 36,159*l.* for 90 years, and which, no alteration taking place in the rate of interest, would exactly suffice for that purpose.

But, at the end of 10 years, the rate of interest rises to 4 per cent., at which rate a capital of 986,403*l.* will yield an annual income of 39,456*l.*, and the annual payment being only 36,159*l.*, the difference is 3297*l.*, that the annual receipt exceeds the annual payment, and which, interest being 4 per cent., will increase in 15 years to 66,018*l.*, and which added to 986,403*l.*, makes 1,052,421*l.* And this will be the capital in existence at the end of 25 years after the regular payment of the annuity.

But if interest had remained at 3½ per cent., then, as the annual excess of payment over receipt would have been 1159*l.*, so would this in 25 years have exhausted a capital of 45,143*l.*, and which deducted from 1,000,000*l.*, would have left a capital of 954,857*l.* to defray the annuity for the remaining term of 75 years, and which would also have exactly sufficed for that purpose. But the existing capital being 1,052,421*l.*, it is manifest that the gain at the end of 25 years, is 97,564*l.*

Having shown, when discussing the effects of a reduction in the rate of interest, that the original capital of 1,000,000*l.*, intended to defray an annuity of 36,159*l.* for 100 years, would be exhausted in 61·91 years (61 years 332 days), if we wish, in the present case, to see the state of things at the end of the same period, we shall find,—

That the capital existing at the end of 25 years, being 1,052,421*l.*, and the rate of interest having risen to 4½ per cent., there will annually be derived from this capital, an income of 47,359*l.*, and the annual payment being 36,159*l.*, the difference is an excess of receipt over payment of 11,200*l.*, and which difference, interest being 4½ per cent., will increase in 36·91 years (36 years 332 days) to 1,014,677*l.*; and which added to the capital of 1,052,421*l.*, makes a total capital of 2,067,098*l.* which would exist at the end of 61·91 years (61 years 332 days), after the regular payment during this period of the annuity.

But if there had been no alteration in the original rate of interest of 3½ per cent., then the annual excess of 1159*l.*, in payment beyond receipt, would, at the end of 61·91 years, have exhausted a capital of 245,483*l.*, and which, deducted from 1,000,000*l.*, would have left a capital of 754,517*l.* to defray the annuity for the remainder of the term; and the existing capital being 2,067,098, it is evident that the gain at the end of 61·91 years is 1,312,581*l.*, the present value of which, interest being 3½ per cent. during 10 years, 4 per cent. during 15 years, and 4½ per cent. during 36·91 years, is 101,772*l.*

At the end of 61·91 years, the annuity (being originally for 100 years) has 38·09 years (38 years 33 days) to run, and the existing capital being 2,067,098*l.*; this at 4½ per cent. will yield an annual income of 93,019*l.*; and the annual payment being 36,159*l.*, the excess of annual receipt over annual payment is 56,860*l.*; and which, interest being 4½ per cent., will increase in 38·09 years to 5,492,989*l.*, and which, added to the former capital of 2,067,098*l.*, constitutes, at the end of the term of 100 years, a total capital of 7,560,087*l.*, which remains as profit, after the regular payment of the annuity.

The rate of interest being 3½ per cent. during 10 years, 4 per cent. during 15 years, and 4½ per cent. during 75 years, the present value of 7,560,087*l.*, to be received at the end of 100 years, is 109,621*l.*, which squares with the gain by our former mode of calculation, and where the profit was deduced from the difference in the value of the annuity.

Such, therefore, is the greater rapidity with which money increases at an advanced rate of interest, that while the gain in present value by a certain absolute rise in the rate of interest is less than the loss in present value, by the same absolute decline, yet, at the end of the term, the gain in one case infinitely exceeds the loss in the other. It should seem, however, in the true nature of things, that the future gain or loss is the real gain or loss; for as final gain or loss on an annuity can never be ascertained till the end of the term, and as the gain or loss during any particular period of time can never be ascertained till after the lapse of that period, so is it the state of things at the end of the period that is to be regarded; and if we carry this back to a present value coeval with the first date of the annuity, this is not to express an actual loss, but to denote the equivalent of that loss, and to show the sum which being added to, or subtracted from, the original capital, would have constituted a capital that should exactly suffice to defray the annuity from the beginning to the end of the term.

We have thus far in our reasoning, and for the purpose of illustration, considered the perpetual annuity as irredeemable; but as the greater part of perpetual annuities are redeemable, and, consequently, obnoxious to a reduction of interest as often as there is opportunity, let us now consider the effect of a reduction in the rate of interest in a case where the perpetual annuity is redeemable, and the annuities for terms of years being irredeemable, let us next consider the case as between these annuities and the perpetuity.

Let then the same annuities exist as before: let them all have been created at 3½ per cent. interest, and then, also, as before, let the rate of interest fall to 3 per cent. after 10 years, and to 2½ per cent. after 25 years.

The terminable annuities being irredeemable, and the loss upon them by a decline in the rate of interest having already been computed and stated, we may dismiss them in the first instance from our consideration, and proceed at once to the perpetual annuity, and here the matter stands thus:—

That, though the money has been borrowed at 3½ per cent., yet having been borrowed in a 3 per cent. stock, a nominal capital has been created, and so that, in consideration of a capital of 1,000,000*l.* in money, a debt has been incurred of 1,166,667*l.*, carrying interest at 3 per cent., and on which the annual charge is consequently 35,000*l.*

And, therefore, though at the end of 10 years there is a real reduction in the rate of interest, and though the Government is able to borrow money at 3 per cent., wherewith to redeem the debt, yet in consequence of the nominal capital which has been created, there would in this be no advantage whatever; for the debt to be redeemed is 1,166,667*l.*, and the interest on this sum at 3 per cent. is 35,000*l.*, which is precisely the amount that is already paid.

And, therefore, though there is a real decline in the rate of interest below the rate of the original contract, and though the debt is redeemable, yet, from the circumstance that it can never be redeemed without a sacrifice of 166,667*l.* in capital, all this is without benefit to the Government; and so that, should there be no further decline in the rate of interest, the same annual charge of 35,000*l.* must subsist for ever.

But when, at the end of 25 years, the rate of interest falls to 2½ per cent., it is clear that this 3 per cent. stock may also be reduced to 2½ per cent., and we shall then have the following position of things:—

The capital of the debt being 1,166,667*l.*, the charge on this capital at 2½ per cent. will be 29,167*l.*, and this sum, being annually paid in consideration of the original advance of 1,000,000*l.* in money, gives an annual rate of interest of 2*l.* 18*s.* 4*d.* per cent. But the real rate of interest is only 2*l.* 10*s.* per cent., and therefore there is still a loss of 8*s.* 4*d.* per cent., and this proceeds entirely from borrowing in stock of a low denomination, and by the creation of a capital of 166,667*l.* which, though nominal at the first, afterwards becomes active and efficient by the decline in the rate of interest.

This being the state of things, the loss on the perpetual annuity stands in the following particulars:—

The rate of interest being 3 per cent. at the end of 10 years, and so continuing to the end of 25 years, and the rate originally paid being 3½ per cent., the first loss consists in an annuity of 5000*l.* for 15 years, deferred for 10 years. Now the value of an annuity of 5,000*l.* for 15 years at 3 per cent. is 59,690*l.*, and the present value of this sum to be received at the end of 10 years, interest being 3½ per cent., is £42,315

The second loss may be stated thus:—The rate of interest at the end of 25 years being 2*l.* 10*s.* per cent., and the rate actually paid being 2*l.* 18*s.* 4*d.* per cent.: and as, according to the first-mentioned rate of interest, the annual charge ought to be only 25,000*l.*, whereas it actually is 29,167*l.*; so does the loss consist in a perpetual annuity of 4167*l.*, to commence at the end of 25 years, the present value of which, interest being 3½ per cent. during 10 years, 3 per cent during 15 years, and 2½ per cent. for ever after, is £75,840

The total loss is therefore £118,155

And the loss, when the annuity was irredeemable, being	£224,326
The gain by the reduction is	£106,171

It now remains that we consider the matter respectively, and with reference to the terminable annuities.

The annuity for 10 years, being extinct before the decline in the rate of interest, offers no point of comparison.

On the annuity for 25 years the loss is 18,087*l.*, and the loss on the perpetuity, notwithstanding the reduction of interest, being 118,155*l*, the difference is 100,068*l.* against the perpetuity.

On the annuity for 50 years the loss is 72,793*l.*, and the loss on the perpetuity being 118,155*l.*, the difference is 45,362*l.* against the perpetuity.

On the annuity for 75 years the loss is 124,153*l.*, and the loss on the perpetuity being 118,155*l.*, the difference is 5,998*l.* in favour of the perpetuity.

On the annuity for 100 years the loss is 161,583*l.*; and the loss on the perpetuity being 118,155*l.*, the difference is 43,428*l.* in favour of the perpetuity.

And, therefore, such is the consequence of borrowing in stock of a low denomination, that though the interest on this stock should be afterwards reduced to square with the decline in the rate of interest, yet as compared with an annuity of 25 or 50 years, on which there has been no reduction, there is still a considerable loss; and that, even when compared with an annuity for 75 years, the gain is very trifling.

But if no nominal capital had been created, and that, the rate of interest being 3½ per cent., the money had been borrowed at par, a very different state of things would have obtained; and as there would then have existed no obstacle to the same reduction of interest on the stock that had taken place in the market, so would the perpetuity have had the advantage in every respect over the terminable annuities; and while the loss on the latter, from the circumstance of their being irredeemable, would still remain the same as we then stated, there would be no loss whatever on the perpetuity.

It now remains that we survey the matter in a different aspect. In all the cases hitherto adduced we have supposed, for purposes of illustration and argument, that when once the rate of interest has fallen to 2½ per cent., this fall continues for ever; but this being in reality an impossible state of things, and there being, as is well known, fluctuations in the rate of interest, we will now consider, that interest having fallen at the end of 25 years to 2½ per cent., it shall rise at the end of 35 years to 3 per cent., and at the end of 50 years there shall be a farther rise to 3½ per cent., and then the perpetuity having been reduced to a 2½ per cent. stock, the following will be the state of things.

By the last calculation, the loss on the perpetuity after its reduction to a 2½ per cent. stock is 118,155*l.* But now, in consequence of the rise in the rate of interest, comes a profit, and which stands in the following particulars.

The first gain proceeds from the rise in the rate of interest to 3 per cent. at the end of 35 years, and this gain consists in the difference in the value of a perpetual annuity of 29,167*l.* at the respective rates of interest of 2½ and 3 per cent., which difference is 194,447*l.*, to be received at the end of 35 years; the present value of which interest being 3½ per cent. during 10 years, 3 per cent. during 15 years, and 2½ per cent. during 10 years, is . . £69,119

The second gain proceeds from the rise of interest to 3½ per cent. at the end of 50 years, and consists in the difference in the value of the same annuity at the respective rates of interest of 3 and 3½ per cent. This difference is 138,890*l.*, to be received at the end of 50 years; the present value of which, at 3½ per cent. during 10 years, 3 per cent. during 15 years, 2½ per cent. during 10 years, and 3 per cent. during 15 years, (which is resolved into 3 per cent. during 30 years, 3½ per cent. during 10 years, and 2½ per cent. during 10 years,) is 31,689

Total gain . . .	£100,808
And the total loss being . . .	118,155
The loss upon balance is . . .	£17,347

Annuity for 10 *years.*

This annuity being extinct before any change takes place in the original rate of interest, and there being also at the foot of the account a loss on the perpetuity, must be left out of the comparison: if, however, there had been a gain on the perpetuity it would have had to be included; for, though there would have been no absolute loss on this annuity, yet there would always have been a comparative loss; inasmuch as to be deprived of gain is comparatively to suffer loss: and that, consequently, it is more advantageous that the money should have been borrowed in a perpetual annuity by which there is a profit, than in a terminable annuity by which simply no loss is sustained.

Annuity for 25 *years.*

The loss on this annuity remains as already stated, and is	£18,087
And the loss on the perpetuity being	17,347
The difference is	£ 740

in favour of the perpetuity.

Annuity for 50 *years.*

The present value of the loss on this annuity at the end of 25 years, as already stated, is	£72,793
From which we have now to deduct the gain proceeding from the rise in the rate of interest to 3 per cent. at the end of 35 years, and which gain consists in the difference in the value of an annuity of 42,634*l.* for 15 years at the respective rates of interest of 2½ and 3 per cent. This difference is 18,891*l.* to be received at the end of 35 years, the present value of which, at 3½ per cent. during 10 years, 3 per cent. during 15 years, and 2½ per cent. during 10 years, is	£ 6,715
Remains loss	£66,078
And the loss on the perpetuity being	17,347
The difference is	£48,731

in favour of the perpetuity.

Annuity for 75 *years.*

The present value of the loss on this annuity at the end of 25 years, as already stated, is	£124,153

From which we have now to make the following deductions:—

1. The gain proceeding from a rise in the rate of interest to 3 per cent., at the end of 35 years.

Brought forward £124,153

2. The gain proceeding from the farther rise to 3½ per cent. at the end of 50 years.

The first gain is resolved into the difference in the value of an annuity of 37,869*l.* for 40 years, at the respective rates of interest of 2½ and 3 per cent. This difference is 75,257*l.*, to be received at the end of 35 years, the present value of which, at 3½ per cent. during 10 years, 3 per cent. during 15 years, and 2½ per cent. during 10 years, is . . . £26,751

The second gain consists in the difference in the value of the same annuity for 25 years at the respective rates of interest of 3 and 3½ per cent.

This difference is 35,279*l.* to be received at the end of 50 years, the present value of which, at various rates of interest, which resolve into 3 per cent. during 30 years, 3½ per cent. during 10 years, and 2½ per cent. during 10 years, is 8,049 34,800

Remains loss . . . £89,353

And the loss in the perpetuity being . . . 17,347

The difference is . . . £72,006

in favour of the perpetuity.

Annuity for 100 *years.*

The present value of the loss on this annuity, at the end of 25 years, as already stated, is £161,583

From which we must now deduct the gains proceeding from the rise, in the rate of interest as already recited, and which gains consist,

First. In the difference in the value of an annuity of 36,159*l.* for 65 years, at the respective rates of interest of 2½ and 3 per cent. This difference is 126,961*l.* to be received at the end of 35 years, the present value of which, at 3½ per cent. during 10 years, 3 per cent. during 15 years, and 2½ per cent. during 10 years, is . . . £45,130

And, secondly. In the difference in the value of the same annuity for 50 years

Brought forward		£161,583
„ „	£45,130	
at the respective rates of interest of 3 and 3½ per cent. This difference is 82,229*l.* to be received at the end of 50 years, the present value of which, at various rates of interest, which resolve into 3 per cent. during 30 years, 3½ per cent., during 10 years, and 2½ per cent., during 10 years, is	18,761	63,891
Remains loss . . .		£ 97,692
And the loss on the perpetuity being .		17,347
The difference is . .		£ 80,345

in favour of the perpetuity.

This is then how the matter stands, in a case where the money has been borrowed in stock of a low denomination, and that a nominal capital has, in consequence, been created. But if the money had originally been borrowed at par, and that the different variations in the rate of interest had taken place in the precise form and manner that we have related, we should have had the following state of things :—

At the end of 10 years, when the rate of interest falls to 3 per cent., the interest on the perpetuity would also be reduced; and so again at the end of 25 years, when interest falls to 2½ per cent.

The reduction in the perpetuity being therefore exactly commensurate with the reduction in the rate of interest, there would, at the end of 25 years, be neither loss nor gain; and the only alteration in the fact would be, that a perpetual annuity which originally stood at 35,000*l.* would be cut down to 25,000*l.*

This state of things would continue to the end of 35 years; but the rate of interest then rising to 3 per cent., there would immediately be a gain on the perpetuity, and this gain would consist in the difference in the value of a perpetual annuity of 25,000*l.* at the respective rates of interest of 2½ and 3 per cent. This difference is 166,667*l.* to be received at the end of 35 years; the present value of which, at 3½ per cent. during 10 years, 3 per cent. during 15 years, and 2½ per cent. during 10 years, is . . £59,245

At the end of 50 years, when interest again rises to 3½ per cent., there is a farther gain in the difference in the value of the same annuity at the

Brought forward £59,245

respective rates of interest of 3 and 3½ per cent. This difference is 119,048*l.* to be received at the end of 50 years, the present value of which, at various rates of interest, which resolve into 3½ per cent. for 10 years, 2½ per cent. for 10 years, and 3 per cent for 30 years, is 27,162

Total gain . . . £86,407

And this gain could never be wholly destroyed, though it might be diminished by a future decline in the rate of interest. Thus, supposing interest should fall to 3 per cent. at the end of 60 years, and farther to 2½ per cent. at the end of 75 years, there would first be the loss of the difference in the value of a perpetual annuity of 25,000*l.* at the respective rates of interest of 3 and 3½ per cent., and which difference amounts to 119,048*l.*, to be received at the end of 60 years, the present value of which, at various rates of interest, which resolve into 3½ per cent. during 20 years, 3 per cent. during 30 years, and 2½ per cent. during 10 years, is £19,256

And, secondly, there would be the loss of the difference in the value of a perpetual annuity of 25,000*l.*, at the respective rates of interest of 2½ and 3 per cent., and which difference is 166,667*l.* to be received at the end of 75 years, the present value of which, at various rates of interest, which resolve into 3½ per cent. during 20 years, 3 per cent. during 45 years, and 2½ per cent. during 10 years, is 17,303

Total loss . . . 36,559
And the total gain being . . 86,848

The gain upon balance is . . £49,848

And there could be no loss, if after this there should be a farther decline in the rate of interest, because, being already at 2½ per cent., which is the rate of the perpetuity, every farther fall would be followed by a similar reduction in the interest on the perpetuity. On the other hand, if interest should rise, this would bring farther profit.

And, now, to apply this state of things to the terminable annuities.

Annuity for 10 *years.*

This annuity, which has hitherto been excluded, now enters into the comparison, and the loss in the present case is the amount of the gain on the perpetuity, which is 49,848*l.*, with the addition of all such further gain as may arise from future fluctuations in the rate of interest, all which is sufficiently plain and certain; for, though there is no positive loss on this annuity, yet is there always a comparative loss arising out of the profit which has been missed by not borrowing in the perpetuity.

Annuity for 25 *years.*

The absolute loss on this annuity is	£18,087
The absolute gain on the perpetuity is	49,848
And, therefore, the comparative loss is	£67,935

Annuity for 50 *years.*

The absolute loss on this annuity is	£66,078
The absolute gain on the perpetuity is	49,848
And, therefore, the comparative loss is	£115,926

Annuity for 75 *years.*

The absolute loss on this annuity is	£89,353
The absolute gain on the perpetuity is	49,848
And, therefore, the comparative loss is	£139,201

Annuity for 100 *years.*

The absolute loss on this annuity is	£97,692
The absolute gain on the perpetuity is	49,848
And, therefore, the comparative loss is	£147,540

To all these several and respective losses there must be added the farther gains of the perpetuity, by fluctuations in the rate of interest: and, the rate being 2½ per cent. at the period of instituting the comparison, if it should rise to 3 per cent. before the annuity for 100 years becomes extinct, it is manifest that, as the gain on the perpetuity would be much greater than on the temporary annuity, a loss upon balance would be established against the latter, and which must be added to the loss as already stated.

And now, dropping all fluctuations in the interval between

75 and 100 years (and which, from the very nature of things, must always have been in favour of the perpetuity, as compared with the temporary annuity), let us suppose that, at the end of 100 years, when all the temporary annuities are extinct, the rate of interest is 4 per cent., the further gain on the perpetuity will then be the difference in the value of an annuity of 25,000*l.*, at the respective rates of interest of 2½ and 4 per cent. This difference is 375,000*l.*, to be received at the end of 100 years, the present value of which, at various rates of interest, which resolve into 3½ per cent. during 20 years, 3 per cent. during 45 years, and 2½ per cent. during 35 years, is 21,037*l.* This further gain in the perpetuity must be added to the already stated losses on the different temporary annuities.

And now, from all these calculations it results that, at any given rate of interest whatsoever, it is more advantageous for a government to borrow money in a perpetuity at par than to borrow at the same rate of interest in annuities for terms of years; for, as there must and will be fluctuations in the rate of interest, so will these fluctuations almost universally be in favour of the perpetuity, as compared with the annuity for a term of years, and this for the following reason:—that, during the various fluctuations in the price and rate of interest on public securities, the government is able to select a period in which to reduce the interest; and, as every reduction is irrevocable, and that whatever is so gained is never returned when the rate of interest again advances, the government gains on the perpetuity; while it gains nothing on the terminable annuity, the interest on which it has had no means of reducing.

These are the principles which, in our way of conceiving such matters, regulate the loss and gain on annuities; and from these principles it follows,—

1. That the absolute loss or gain on an annuity is the issue of a comparison between the terms of the original contract and the terms upon which the bargain may be rescinded and the annuity redeemed; and, therefore, as the higher the rate of interest, the lower is the price of the annuity, and the more advantageous the terms on which it may be redeemed and *ordine inverso,* so does it follow, that by every rise in the rate of interest there is a gain, and by every fall a loss, to the grantor of an annuity.

2. That, in the case of a redeemable perpetual annuity, created in stock of a low denomination, when at a price below par, the chances in general are, that there will be a loss, for there can be no gain, except, upon balance of the account,

the market price of the annuity be below the contract price; and this, when a government has never broken faith, is in good credit, and punctually pays its dividends, is not in the common order of things. On the other hand, there must be a loss when the price rises, and, though this loss may be mitigated, yet it never can be wholly avoided, if even there should be a reduction in the interest and denomination of the annuity that shall square to the rate of interest yielded by the market-price of the annuity: and this, for a very plain and sufficient reason; that, as the annuity could never be redeemed without the sacrifice of the nominal capital that has been created, so also must the reduced interest be paid on this nominal capital. And, therefore, interest being paid on a capital which has never been received, it is clear that there must be a loss, although the denomination of the stock should be so reduced as to conform exactly to the interest yielded by the market-price of the annuity.

Hence, it follows, that though, if ever our large debt in 3 per cents. should be reduced to 2½ per cents., there would be a great gain, as compared with the present state of things; yet, as resulting from the terms on which this debt was contracted, and the enormous nominal capital that has been created, the loss would still be greatly considerable.

3. That, in the case of a redeemable perpetual annuity created at par, at a rate of interest answering to the existing state of things at the time of the contract, all the chances are in favour of a gain; for, first, there is a gain when interest rises, seeing the annuity may be redeemed at a price below the original contract; and, next, there is no loss when interest falls, inasmuch as the annuity is reduced accordingly.

There being therefore a gain when interest rises, and no loss when it falls, either there never will be a rise of interest, or there must be a gain on the annuity.

It is equally clear that the fluctuations in the rate of interest, and the price of public securities, must always terminate in a gain on the annuity. For though, when, in conformity to the reduction in the rate of interest, the annuity is also reduced, there is no actual absolute gain, but merely a saving from loss, yet, when from this point interest rises, there is immediately a gain on the annuity.

From the circumstance, therefore, that interest fluctuates, it is manifest that there must be a rise from some point, whether above the rate of the original contract, and previous to a reduction, or after a reduction, and above the rate of the reduced denomination, and in either case there will be a gain on the annuity. In the first case, the thing is plain of itself; in the second, it is equally plain, when we reflect that the reduction becomes a second contract, to which, as in the first contract, a rise in the rate of interest is equally advantageous.

By these reasons it is therefore very apparent that all redeemable perpetual annuities created at par, and at a rate of interest which agrees to the existing state of things at the period of the contract, will generally end in profit to the government.

4. That, supposing all annuities to be irredeemable, a loss or gain by a fall or a rise in the rate of interest will, upon every several annuity, be proportioned to its duration; and, therefore, greatest on the perpetuity, and least on the temporary annuity that ends in the shortest period of time.

But if, while the annuity for a term of years is irredeemable, the perpetuity should be redeemable, then the result will depend on certain circumstances, which, in order to a just comparison, must be carefully weighed and considered.

If the perpetual annuity be created below par, and that there should be a rise in the rate of interest, then the gain on the perpetuity will always be greater than on the annuity for a term of years, and this, because the nominal capital of the perpetuity does not come into play and activity to counteract the effect of the rise in the rate of interest; and, therefore, there is the same gain by a rise in the rate of interest on an annuity issuing out of stock of a low denomination as if the money had been borrowed at par, and which may be shown in a moment. For, the rate of interest being 4 per cent., let 1,000,000*l.* be borrowed at par. Then let interest rise to 5 per cent., and, as the price of the stock will in consequence fall to 80, there will be a gain of 200,000*l.* on the annuity. But, if the money had been borrowed in a 3 per cent. stock, at the same rate of interest, there would have been precisely the same gain: for the price of the contract for the stock would have been 75, and the amount of stock created would have been 1,333,333*l.* When interest rises to 5 per cent. the price of the stock falls to 60, and thereby the profit is 15 per cent. on a capital of 1,333,333*l.*, which amounts to 200,000*l.*, the same as in the former case.

But if there be a reduction in the rate of interest, then, whether the loss on the perpetuity shall be greater or less than on the annuity for a term of years, will depend upon whether, in consequence of the decline in the rate of interest, there shall be a reduction in the perpetuity, the extent of this reduction, and the period when it takes place, with reference to the duration of the terminable annuity. All which we have very fully set forth and exemplified by case and calculation.

But if the perpetual annuity be created at par, then we have no longer need of distinction; for as, while it holds universally that, all other things being equal, the loss or gain on an annuity resulting from a change of interest will be in proportion to its duration; yet, as there never can be a loss on the perpetuity when interest falls, and that when interest rises the gain on the perpetuity is greater than on an annuity for a term of years, so is it only in case that interest should remain stationary at the price of the contract, that the annuity for a term of years can be on a par with the perpetuity, and so that which to take is a matter of indifference.

Finally, take this observation, that if there should never be a rise in the rate of interest, but that, on the contrary, there should be a fall, and that this fall should continue for ever; so, while, on the one hand, it would be clear that there could be no positive gain by a reduction of the perpetuity to a level with the lowest rate of interest, yet, on the other, it is equally clear that there would be a great comparative gain by the escape from that loss which must be sustained by the temporary annuity.

And now it falls to be noted that all the preceding remarks and calculations are founded on the hypothesis that the rise or fall in the price of public securities, and, consequently, the loss or gain to the state, proceeds entirely from, and is exactly commensurate with, the rise or fall in the rate of interest on private securities, and then it is clear that, as an individual would suffer loss if, having borrowed money at 5 per cent., and interest should fall to 4 per cent., he should not be able to obtain a proportionate reduction of interest; and as it is equally clear that, if even he should obtain a reduction of interest, he would still make no absolute profit, but merely escape from a loss: so is it also clear that this is exactly the situation of the state under similar circumstances, and that, while in one case there is real absolute loss, in the other there is no absolute profit, but merely an escape from loss.

But, as an individual, who, when the market-rate of interest was 5 per cent., should, in consequence of his superior credit, be able to borrow money at 4 per cent., would gain the difference between the two rates of interest; so, in like manner, would the government, as trustees for the public, make the same absolute gain, if, the average rate of interest on private securities being 5 per cent., it should be able to borrow money at 4 per cent.; or if, having borrowed money at 5 per cent., when this was the rate of interest on private securities, it should be able, in consequence of its improved credit, to reduce the interest on the loan to 4 per cent., while the rate of interest on private securities remained without variation.

Now all this is of principal note and observation; for, first, it is a fact, that the public securities of this country carry a lower rate of interest than the average rate of interest on private securities throughout the United Kingdom; and next, it is also a fact, that they frequently continue undisturbed, or even rise in price, when, from a rise in the rate of interest on private securities, they ought to fall; and it may be laid down as a principle, that, where a government is of long-established credit, the tendency towards a rise in the price of its stock will be greater, in the event of a fall in the rate of interest on private securities, than the tendency towards a fall in the event of a rise in the rate of interest on private securities: and so that, ultimately, the proportionate rise in the price of stock, in the one case, will be greater than the proportionate fall in the other.

And now everything relating to the loss or gain of the government, on its annuities, may, we believe, be summed up and stated after the following manner :—

1. There is absolute gain to the state when the price of its stock falls below the price at which it was originally created, and this whether proceeding from a rise in the rate of interest on private securities, or from a rise in the rate of interest on public securities, while the rate on private securities remains unaltered; or partly from one cause and partly the other. All which is evident; for, as the debt may be discharged and the annuity repurchased for a less sum than was originally obtained for it, there is always a profit, whatever the cause from which it proceeds; and, like as an individual would make profit by buying back his annuities for a less price than he originally obtained for them, so also does the state make the same profit under the same circumstances. But here we must distinguish: when there is a fall in the price of stock, and that the rate of interest on private securities remains unvaried, there is no gain to the state, unless it should actually buy back its annuities; but there is always the same gain to the state, whether it buys up its annuities or allows them to subsist, when the fall in their price proceeds from a rise in the rate of interest on private securities.

2. There is absolute gain to the state when the rate of interest at which it borrows money is below the general rate of interest on private securities.

3. There is absolute gain to the state when it reduces the interest on its debt, provided such reduction be not the consequence of a reduction in the general rate of interest on private securities, but that it proceeds from the preference given to the securities of the state.

4. There is absolute gain to the state when, after having reduced the interest on its debt, there is a fall in the price of its securities; and this from whatever cause proceeding.

5. There is absolute loss to the state when it borrows money above the general rate of interest on private securities.

6. There is absolute loss to the state when, the price of stock having risen in consequence of a decline in the general rate of interest on private securities, it nevertheless is not able to reduce the interest, in consequence of having borrowed in stock of a low denomination.

7. There is comparative loss to the state when, the price of its stock having risen, not by reason of a decline in the general rate of interest on private securities, but on account of the preference given to its securities, it is, nevertheless, unable to reduce the interest, in consequence of having borrowed in stock of a low denomination.

8. There is neither gain nor loss when, the rise in the price of stock being in consequence of the fall in the general rate of interest on private securities, the state reduces the interest on its debt in the same proportion.

This comprises nearly all that may be said on the matter in way of reason and principle; and no part of it, we believe, may be contradicted: for, as in every one of the supposed cases there would, to an individual who should grant annuities, be either absolute or comparative loss or gain, or that things would equiponderate; so, by identity of reason, must there be either absolute or comparative loss or gain to the state, or that things will equiponderate, and there will be neither profit nor loss, whether absolute or comparative.

And now, that we may set forth and illustrate the foregoing principles by case and calculation, let us suppose the rate of interest on private securities to be 4 per cent., and that the government borrows 2,000,000*l.*, at the same rate, of which 1,000,000*l.*, in a perpetual annuity issuing out of a 4 per cent. stock, and the remaining 1,000,000*l.* in an annuity for 25 years, and that, at the end of 10 years, and without any change in the rate of interest on private securities, but simply in consequence of its superior credit, the government should be able to reduce the interest on the perpetuity to 3 per cent. The absolute gain to the government would be a perpetual annuity of 10,000*l.*, deferred for 10 years, the present value of which, at 4 per cent. during 10 years, and 3 per cent. for ever after, is 225,188*l.*

Let us next suppose that at the end of another 10 years the rate of interest on private securities rises to 5 per cent., and that the interest on public securities, which before was 3 per cent., rises to 4 per cent. But, although interest is 4 per cent., yet, as the government, in consequence of the reduction, pays only 3 per cent., while the rate of interest on private securities is 5 per cent., so is it clear that the gain is 2 per cent. per annum on 1,000,000*l.*, with the addition of the previous gain of 1 per cent. per annum during 10 years, and so that the gain is resolved into two annuities,—as,

1. An annuity of 10,000*l.* for 10 years, to commence at the end of 10 years, the present value of which, at 4 per cent. during 10 years, and 3 per cent. during 10 years, is £57,627

2. A perpetual annuity of 20,000*l.*, to commence at the end of 20 years, the present value of which, at 4 per cent. during 10 years, 3 per cent. during 10 years, and 4 per cent. for ever after, is 251,342

Total gain . . . £308,969

This is then the state of things, supposing the debt to continue unredeemed; but if it were bought up and redeemed at the market price it would stand thus:—

The capital of the debt being 1,000,000*l.*, reduced to a 3 per cent. stock, and the rate of interest being 4 per cent., the market price of the stock would be 75, and the value of the 1,000,000*l.* would be 750,000*l.*; and, the sum originally received being 1,000,000*l.*, the gain would be 250,000*l.* to be received at the end of 20 years, the present value of which, at 4 per cent. during 10 years, and 3 per cent. during the remaining 10 years, is £125,661

Add the present value of an annuity of 10,000*l.* for 10 years deferred for 10 years, which is . . 57,267

£182,928

And, the gain when the debt subsists being 308,969*l.*, the difference is 126,041*l.*, that it is more advantageous that the debt should continue than that it should be redeemed.

This is then the state of things as regards the perpetual annuity. With respect to the annuity for 25 years it will be thus:—

When this annuity was granted the rate of interest both on public and private securities was the same, that is, 4 per cent., and at this rate the sum of 1,000,000*l.* is equivalent to an annuity of 64,012*l.* for 25 years.

The rate of interest both on public and private securities continuing to be 4 per cent. during 10 years, so is there during this period neither loss nor gain on the temporary annuity.

At the end of 10 years, the rate of interest on the perpetuity being reduced to 3 per cent., while there is no reduction in the temporary annuity, there is a comparative loss in the temporary annuity of 225,188*l.*, because this would have been the gain if the money had been borrowed in perpetuity. But there is no absolute loss, because, the rate of interest on private securities still being 4 per cent., the money is always employed at the same interest at which it was borrowed.

At the end of the second 10 years the annuity has 5 years to run, and, it having been granted at 4 per cent., and the rate of interest on private securities having advanced to 5 per cent., there is consequently the gain of the difference in the value of an annuity of 64,012*l.* for 5 years at the respective rates of interest of 4 and 5 per cent. This difference amounts to 7835*l.* to be received at the end of 20 years, the present value of which, at 4 per cent. during 10 years, and 3 per cent. during 10 years, is 3939*l.*

The absolute gain on the temporary annuity being 3939*l.*, while the absolute gain on the perpetuity, under precisely the same circumstances, is 308,969*l.*, so does it follow that the comparative loss on the temporary annuity is 305,030*l.*

In the preceding calculations the gain arises from a rise in the price of public securities, followed by a reduction of interest. Let us now suppose that, money having been borrowed as before at 4 per cent., the rate of interest on government securities should at the end of 10 years rise to 5 per cent., while interest on private securities remains unvaried.

The value of the perpetuity would then be 800,000*l.*, and, the sum originally received having been 1,000,000*l.*, the gain is 200,000*l.* to be received at the end of 10 years, the present value of which at 4 per cent. is 135,113*l.*

And the gain on the temporary annuity would be the difference in the value of an annuity of 64,012*l.* for 15 years, at the respective rates of interest at 4 and 5 per cent. This difference is 47,292*l.* to be received at the end of 10 years, the present value of which at 4 per cent. is 31,949*l.*; and, the gain on the perpetuity being 135,113*l.*, so does it follow that the comparative loss on the temporary annuity is 103,164*l.*

This is the state of things, supposing the debt to be bought up and discharged, and the profit is plain, because the public, borrowing money at 4 per cent. on private securities, and being able to employ this money at 5 per cent. in the discharge of the debts of the state, gains the difference between the two rates of interest.

But if there be no discharges of the debt there will be no gain whatever, neither will there be any loss; but there will be simply this state of things:—That money originally borrowed at 4 per cent. has always been and still continues to be employed at the same rate of interest, and so there is neither gain nor loss.

In this last case it is supposed that there is a fall in the price of government securities, while interest on private securities remains unvaried; but, if this fall should proceed from a rise in the rate of interest on private securities to 5 per cent., then the same gain will be made whether the debt be discharged or whether it be allowed to continue. For, if discharged, the public gains the difference by paying off at 80 a capital which was originally borrowed at 100 per cent. This difference is 200,000*l.* in the perpetuity, and 47,292*l.* in the temporary annuity, both values to be received at the end of 10 years.

If the debt be allowed to remain the public gains the difference, by employing at 5 per cent. a capital which was originally borrowed at 4 per cent. This in the perpetuity is 10,000*l.* per annum, the value of which at 5 per cent. is 200,000*l.*, and the gain on the temporary annuity is 47,292*l.*, both values to be received at the end of 10 years.

And, now, it may be said, that by discharging the debt the gain is secured, but, by allowing it to remain and leaving the matter to chance, there may be such a change of circumstances as to diminish the profit; and this is true. But there may also be such changes as to make the profit still greater; and, as the government may gain by a rise in the rate of interest on private securities, which shall equally affect public securities, that it may also gain both by a rise and a fall in the rate of interest on public securities, while interest on private securities remains unvaried; and, finally, that it may gain when the interest on public securities runs counter to the interest on private securities, and so that when one falls the other rises; so under these circumstances it is clear that the longer a debt continues, the greater are the number of chances in favour of the government. In short, when money is borrowed at par, as is supposed in the recited cases, it is clearly impossible that anything can happen to render the situation of the government worse than at the period when the money was first borrowed; but, as every change and fluctuation in the rate of interest, whether on public or private securities, must constantly be in its favour; so is it obvious that, having all the chances in its favour, and none against it, there will turn up by the continuance of the debt some or more chances which shall be even more advantageous to the government than the discharge of the debt at the difference between 4 and 5 per cent. in the rate of interest.

We might multiply cases, but the above are sufficient to illustrate the principles we have laid down; and, having for the greater ease and convenience of the reader made the calculations in the present introduction upon the principle that money at compound interest increases by yearly payments, all these calculations may be verified by means of the usual compound interest tables, and the whole subject made familiar to a person of ordinary understanding. In several parts of the work, however, and in all the notes, the calculations are made upon the principle of half-yearly payments.

A CRITICAL EXAMINATION, &c

PART I.

THE RESOLUTIONS.

The following Resolutions, respecting the loan of 15,000,000*l.* for compensation to the West Indian planters, were submitted by Mr. Hume to the House of Commons on the 4th of September, 1835, and were negatived upon an understanding that the matter should be carefully inquired into, and again brought under the consideration of parliament:—

1*st.* That the loan of 15,000,000*l.* has been made by the Chancellor of the Exchequer at the rate of 86*l.* 9*s.* 5*d.* money for every 100*l.* in consols, as follows, viz.:—

He has given 75*l.* stock consols, and
25 reduced,
=100*l.* of 3 per cent. stock for every . 100*l.*, money;

Also, 13*s.* 7*d.* of long annuities, terminable in 1860, equal in cash to 16*l.* 14*s.* 4*d.* for 1*l.* . . . =	£11	7	1			
And 3 months' interest due on reduced, viz.:—from 5th April to 5th July on 25*l.* . . . . =	0	3	9			
Add a discount for prompt payment of the 90*l.*, remaining instalments after payment of the deposit. . =	1	19	9	=£13	10	7
Leaving				£86	9	5

—in money, as the price of every 100*l.* of consols, which is equal to a rate of interest of 3*l.* 9*s.* 5*d.* per cent., or 3*l.* 9*s.* $4\frac{67}{100}$*d.*

2*d.* Which appears by the following statement of the amount of stock, and the price of such stock given for every 100*l.* cash, viz.:—

For 75*l.* consols, at 86*l.* 9*s.* 5*d.* . . .	£64	17	0¾
For 25*l.* reduced, at 87*l.* 4*s.* 5*d.*	21	16	1¼
For 13*s.* 7*d.* of long annuity, at 16*l.* 14*s.* 4*d.* per 1*l.*	11	7	1
And discount for prompt payment	1	19	9
	£100	0	0

3d. That the following charges on the Consolidated Fund have been incurred for the said loan of 15 millions of money, as will appear on the books of the Bank of England, viz.:—

For 11,250,000*l*. of consols, payable from 5th July, at 3 per cent.	£337,500
For 3,750,000*l*. of reduced, payable from 5th April, at 3 per cent.	112,500
Making a perpetual charge of .	£450,000
And 101,875*l*. of long annuities, payable from 5th April, 1835, to January, 1860. .	£101,875 yearly.

4th. That, if the whole of the loan had been raised in one stock, and that stock had been 3 per cent. consols, at the price above stated of 86*l*. 9*s*. 5*d*., the gross amount of 3 per cent. capital stock, added to the debt of the country, would be 17,346,890*l*., and a perpetual annual charge for the same of 520,406*l*. 14*s*. payable from the 5th of July, 1835.

5th. That, if the whole had been raised in reduced 3 per cents. at the price of 87*l*. 4*s*. 5*d*., being the difference of 15*s*. of interest added to the price of consols, the amount of 3 per cent. reduced capital stock, added to the debt of the country, would be 17,197,726*l*., and a perpetual annuity of 515,931*l*. 15*s*. payable from 5th April, 1835.

6th. That, if the whole loan had been contracted in long annuities, payable from 5th April, 1835, and terminating in January, 1860, the annuity during that period would have been 897,308*l*.

7th. That, if the loan of 15 millions had been raised in the new 3½ per cent. stock, at the price of 97*l*. in money for every 100*l*. stock, and that the same discount had been allowed for prompt payment as on the present loan, this would have given a net price, after deducting discount, of 95*l*. 1*s*. 7*d*. in money for every 100*l*. stock; and, thereby, the capital added to the debt of the country would have been 15,776,327*l*., and the perpetual annuity 552,171*l*. 9*s*. payable from 5th July, 1835; being at the rate of 3*l*. 13*s*. 8*d*. per cent. for money, or 3*l*. 13*s*. $7\frac{47}{100}$*d*.

8th. That the capital stock created by the present loan of 15,000,000*l*. of money, when estimated in consols, being equal to 17,346,890*l*., and the capital, if raised in a 3½ per cent. stock, being only 15,776,327*l*., the increase in the capital of the debt by the present loan, as compared with the loan in the new 3½ per cent. stock, is 1,570,563*l*.

9th. That, if the loan had been contracted in the new 3½ per cent. stock, at the price of 97*l*., with a guarantee against the reduction of interest for 15 years; and that at the end of that term the 3½ per cent. stock were reduced to a 3 per cent. stock, the comparison with the present contract would be as follows:—

To borrow in a 3½ per cent. stock at the price of 97*l*., reduced by discount to 95*l*. 1*s*. 7*d*., is to pay interest at the rate of . . .	£3	13	8
The present loan is contracted for at the rate of interest of . .	3	9	5

Showing a greater rate of interest of £0 4 3 paid on the 3½ per cent. loan, which difference of 4*s*. 3*d*. in the rate of interest is an annuity; and an annuity of 4*s*. 3*d*., interest being reckoned at 3½ per cent., will increase in 15 years to a sum of 4*l*. 2*s*.; which sum again, interest being reckoned at 3 per cent., is equivalent to a perpetual annuity of 2*s*. 5½*d*.; and, therefore, supposing the 3½ per cents. to be reduced to 3 per cents. after 15 years, the account will stand thus:—

The rate of interest at which the present loan is contracted for, is				£3	9	5
The rate of interest on 3½ per cent. stock, reduced to a 3 per cent. stock, is at the end of 15 years	£3	0	0			
Add the perpetual annuity arising from the loss of 4*l*. 2*s*. 2*d*., being the accumulation of the excess of interest of 4*s*. 3*d*. paid during 15 years . .	0	2	5½			
				=3	2	5½

Showing a difference of £0 6 11½ per cent. payable for ever after on the whole 15 millions, as at present contracted for, more than would have been payable if the loan had been raised in a 3½ per cent. stock, as stated in Resolution 7.

10*th*. That the difference of 6*s*. 11½*d*. per cent. upon 15 millions constitutes a permanent annuity of 52,187*l*. 10*s*.; but this annuity, though permanent, after it has once begun, is a reversion, the payment of which commences at the end of 15 years, and the present value of which, interest being reckoned at 3½ per cent. during 15 years, and at 3 per cent. for ever after, is 1,038,341*l*. 12*s*.

11*th*. That, besides the above loss to the public of 1,038,341*l*. 12*s*., arising from the difference of charge for the annuity, there will be an additional loss to the public of 1,570,563*l*. by the increase of capital of the national debt, as shown in the 8th Resolution.

12*th*. From these facts it appears that, if the Chancellor of the Exchequer had raised the 15 millions in a 3½ per cent. stock at 97*l*., reducible in 15 years to a 3 per cent. stock, this would have been equivalent to a net price of 92*l*. 9*s*. 1*d*. for 100*l*. consols, instead of the net price of 86*l*. 9*s*. 5*d*. which he receives by the present contract; being a loss of 5*l*. 19*s*. 8*d*. per cent., commencing from the present time; and exclusive also of the increased amount of the capital of the debt.

Now these resolutions we propose to examine impartially, and with all the care and diligence we are able, both as regards the principle, and the calculations which are the result of this principle.

The principle is of a choice nature, and involves a weighty question in finance, and which we do not remember ever to have seen brought under formal discussion, and submitted in its several bearings to the test of accurate analysis; and therefore, though it cannot fail to have passed frequently through the minds of men who occupy themselves with questions of finance, and though it may also perhaps have been incidentally and partially inquired into, yet, never having been fully and formally argued and debated, it is to all real practical purposes a new question.

And now, if we will carefully look into the principle, we shall find it to stand in this proposition:

That, when money is borrowed in stock of a low denomination, that is, stock bearing a low rate of interest, there being less chance of a future reduction of interest than if the money had been borrowed in stock of a higher denomination, it will generally happen that the rate of interest at which money may be borrowed will be lowest in stock of the lowest denomination. And, therefore, to borrow money in stock of a low denomination is to gain a small present advantage in the rate of interest at the expense of a future greater advantage, to be derived from a reduction of interest, but which future advantage is not absolutely certain, but merely probable and contingent: and then comes this further consideration, that the present gain in the rate of interest by borrowing in stock of a low denomination can only be obtained by a sacrifice of capital, that is, by a larger creation of debt than would have ensued if the money had been borrowed in stock of a higher denomination.

This is then the principle, and the plain state of things, when we borrow in stock of a low denomination. On the other hand, to borrow in stock of a higher denomination is to submit to a small present loss in the rate of interest, with the view to a greater reduction of interest hereafter.

Now the latter is Mr. Hume's principle; and, to discuss this principle fairly, the three things following are to be carefully weighed and considered.

1. What are the advantages to be gained by borrowing in stock of a high, as compared with stock of a lower denomination, supposing the interest to be reduced at the period assigned as probable for the reduction to take place?

2. What are the advantages or disadvantages of the same operation, in case the reduction should not take place at the assigned period, but at a future assigned period?

3. What are the advantages or disadvantages of the same operation, in case the reduction to a lower rate of interest should never be accomplished?

These are the points which we propose to examine in the following pages; and that this may be done with effect, we now turn to Mr. Hume's Resolutions, which proceed upon this principle, that, instead of contracting the present loan, the greater part of which consists in stock of a low denomination, the Chancellor of the Exchequer might have contracted a loan in the new 3½ per cents. at 97 per cent., under a guarantee against any reduction of interest for 15 years, and that by adopting this plan he would have saved a large sum to the country.

Now as regards the bare fact of the case, it certainly appears not only that Mr. Hume is correct, but that he is much within bounds, and that not only might the loan have been made in new 3½ per cents. at 97, under a guarantee against any reduction of interest for 15 years, but that it might have been made at this price without any guarantee whatever, save the guarantee which this stock already possesses, and by virtue of which it is not redeemable till 1840, and so that when the Chancellor of the Exchequer made his loan, the new 3½ per cents. possessed a 5 years' guarantee against redemption.

All we have here said will become manifest if it be considered, that although for some little time previous to the loan, it was the opinion in many quarters that the transaction would take place in a 3½ per cent. stock, yet the average price of new 3½ per cents., from the 15th of July to the 1st of August, 1835, both inclusive, was 98*l.* 9*s.* 8*d.* per cent., and the price of 97, which forms the basis of Mr. Hume's calculations, leaving a net price after deducting discount of only 95*l.* 1*s.* 7*d.* per cent., it is very hard to imagine that a loan could not have been made at this price, which is more than 3 per cent. below the average market price of the stock.

Further, on the 3rd of August, 1835, being the day on which the loan was taken, the average price of new 3½ per cents. was 98*l.* 13*s.* 4*d.* per cent., which is an excess of

3*l.* 11*s.* 9*d.* per cent. beyond the price assumed by Mr. Hume in his calculations.

Finally, on the 4th of September, 1835, being the very day when the debate on Mr. Hume's motion took place in the House of Commons, the price of new 3½ per cents. was 99⅛ to ¼, and therefore if the loan had been made in new 3½ per cents. at 97, the real value of the scrip of such a loan would have stood as follows :—

Price of the loan	£97		
Discount from the 4th of September, 1835, to the 13th of September, 1836, on the remaining instalments, being 374 days on £87 at 2 per cent. per annum	1	15	8
	£95	4	4

And then by deducting this sum from 99*l.* 2*s.* 6*d.*, the price of the stock, it will appear that on the 4th of September, 1835, the real value of the scrip of a loan in new 3½ per cents. at 97, would have been a premium of 3*l.* 18*s.* 2*d.* per cent

And therefore, all these facts and circumstances taken into consideration, it should seem to be past all doubt, that a loan in 3½ per cents. could with great facility have been negotiated at the price of 97, and this without any additional guarantee beyond that which the stock already enjoys.

It is upon this principle therefore that Mr. Hume ought to have made his calculations; and taking the price of 97 as his basis, he ought to have shown the effect of a reduction after 5 years, this being the term for which the new 3½ per cents. already possess a guarantee; and considering the great value to the fundholder of a guarantee against a reduction of interest in stock of the higher denominations, there is, we believe, no doubt that with a guarantee against redemption for 15 years, that is, for 10 years beyond the term of the present guarantee, the price of 98 for a loan in 3½ per cents. would have been very moderate; and in like manner with a guarantee for 10 years, that is, for 5 years beyond the present term, the price of 97½ per cent. would have been considered as very moderate: the effect of all which we shall consider and compute hereafter.

In the mean time it will not perhaps be amiss that we say a few words touching the reduction of interest on a public debt.

That the interest on stock of a higher denomination may be reduced with much greater facility than on stock of a lower denomination, and that the lower we descend in the scale of denominations, the greater the resistance to a reduction of interest is manifest of itself—that is, it is manifest as a principle: but this principle is so modified by circumstances, that it shall at one time be much less difficult to reduce the interest on stock of a lower than at another time on stock of a higher denomination. Thus in 1822, for example, it was only possible to reduce the Navy 5 per cents. to 4 per cents. by means of a large *bonus;* but in 1830 the same stock was reduced from 4 to 3½ per cent. without any *bonus* whatever, and this makes a marvellous difference; because upon the general principle the resistance to the reduction from 4 to 3½ per cent. ought to have been much greater than to the reduction from 5 to 4 per cent., and yet it was much less. And therefore the principle that the resistance to a reduction of interest is in a ratio with the denomination of the stock, and that the lower the denomination the greater the resistance, is liable to be modified by circumstances, and in the present case these modifying circumstances appear to have been the following:

1. A greater confidence in the consistence and stability of things under a continued system of cash payments.

2. A much greater abundance of money from the same cause; and though this to some ears may sound like a paradox, yet nothing is more certain in fact and experience, or so easily demonstrable by principles of general reason, that money is permanently most abundant under a pure metallic system, and where all paper money is interdicted. The next in succession is a currency partly paper and partly metallic, and where the paper is convertible at the will of the holder into cash; and here money will permanently be more or less abundant, according to the denominative value of the notes that are allowed to circulate. The nearer a paper currency of this description approaches to the nature of a metallic currency, the greater will be the abundance of money, and this is done by raising the denomination of the notes which are allowed to circulate; and consequently there will permanently be a greater abundance of money with a prohibition to the circulation of notes under 10*l*., than if the prohibition were to extend only to notes under 5*l*. And with every extension of the prohibition, there will be an increase in the quantity of money; and so that with a prohibition to the circulation of all notes under 50*l*., money will utimately and permanently be much more abundant, than if the prohibition were to extend only to notes under 20*l*.

The last in order is an inconvertible paper money; and here, from the very nature of things, money always is and must be scarce, that is, upon the supposition that it be obligatory to take such paper at its full denominative value; but if it be allowed to circulate at a discount, and for what people choose to give for it, then it does not necessarily follow that money will be scarce under such a system, because inconvertible paper money which is allowed to circulate at a discount interferes no further with the circulation of the precious metals than by its supplanting to the amount at which it passes a value which would otherwise have been supplied by a metallic currency; whereas an inconvertible paper money passing by law at its full denominative value, unless very limited in amount and of undoubted solvency, banishes the precious metals entirely from the circulation *.

3. The third circumstance which in 1830 made it quite as easy to reduce the 4 per cents. to 3½ per cents. without a *bonus*, as in 1822 to effect a reduction from 5 to 4 per cent. by means of a *bonus*, is the increasing partiality for government securities. The solidity of the security itself, the punctuality in the payment of the dividends, the fixedness of their periods, the facility with which they are received; the promptitude with which money may be turned into stock, and stock again into money, and so that a man may either become or cease to be a fundholder when he pleases, or he may vary the amount of his stock according to circumstances and the nature and exigency of his affairs; or he may change the form of his security, and go from a permanent annuity of one denomination into a permanent annuity of another denomination. Or he may vary both the nature and the form of his security, and go from a permanent into a terminable annuity, and *ordine inverso*. And therefore under all these circumstances—considering the solidity of the security, the various combinations that may be made by means of this security, and the promptitude with which they may be effected—we are not to be surprised at the increased and still increasing demand for government securities: and then, without any reduction in the market rate of interest, the rate of interest on government securities may decline, and this not merely from the circumstance that they are preferred to the common run of private securities, but that with the mass of the community they are preferred to any private security whatever, and however solid and unexceptionable.

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* See Appendix 2.

4. The fourth circumstance which facilitated the reduction in 1830, was the greater abundance of money as compared with 1822. For in 1822 the average circulation of the Bank of England was 17,862,872*l.*, and the average amount of private deposits was 2,202,600*l.*, and therefore in so far as regards the administration of the currency by the Bank of England, the total quantity of money was 20,065,472*l.* But in 1830, the average circulation of the Bank of England was 20,491,102*l.*, and the average amount of private deposits was 6,951,825*l.*, making together a sum of 27,442,927*l.* The difference is therefore 7,377,455*l.*, or about 30 per cent., that in so far as regarded the administration of the currency by the Bank of England, there was more money in 1830 than in 1832; and the great excess in the quantity of money being in the deposits, and not in the circulation, makes it manifest that the market-rate of interest was lower in 1830 than in 1822.

These, to our thinking, are the four circumstances which so modified the general principle, as to make it quite as easy to reduce the 4 per cents. to 3½ per cents. in 1830, as the 5 per cents. to 4 per cents. in 1822; and this although a large *bonus* was given in one case, while none whatever was given in the other.

And now, from what has been said, we may easily discern, that, all other things being equal, a further reduction of interest on the British national debt relies on two circumstances: first, a great and growing partiality for government securities; and next, a decline in the market rate of interest. And then, supposing foreign politics and the internal state of the country to be favorable, it will probably be found, that the first circumstance alone, and without the aid of the second, will be sufficiently powerful to effect a reduction of the 3½ per cents. to 3 per cents. in the course of a few years.

With respect to the market-rate of interest, if we confine ourselves to the mere fact of the case, which is all that is at present required, we shall find that it is subject to frequent and considerable fluctuations; and though it moves within certain limits, yet its course is so devious and uncertain, and depends upon so many events which it is impossible either to foresee or control, that, starting from any given point, the future rate of interest can never be determined, and all that may be predicted with any tolerable degree of accuracy is, that the rate of interest will probably neither fall below nor rise beyond a certain point, but between these extremes the changes and fluctuations may be innumerable.

Now the only way to make judgment of things subject to fluctuation, is to take an average. Let us then suppose the average rate of interest upon good private securities, during a given number of years, to be 4 per cent. But though this be the average of the whole period, yet the actual rate of interest of some one or more years, comprised within this period, may be 3 per cent., or 2¾, or even 2½ per cent. And this must greatly facilitate the reduction of interest on a public debt, because the price of stock at any particular period of time, not being governed by the average rate of interest for a number of years, but by the actual rate of interest at that particular period; so is it clear that among the various fluctuations in the rate of interest, there may be periods when the actual rate of interest will so raise the price of stock, as to make it quite easy to reduce the interest on a public debt, although the average rate of interest should be such as to render the reduction impracticable.

And this brings us to the point of the value to the fundholder of a guarantee against a reduction of interest, and which is greater or less according to the number of years that the guarantee has to run.

For, given the probability that the 3½ per cents. will be reduced to 3 per cents. once within 10 years, yet for the reasons we have mentioned, the precise period being uncertain, the odds are always 9 to 1 that it will not take place in any one particular year; and therefore, while it is 9 to 1 that it will not take place the first year, it is also 9 to 1 that it will not take place during the last year of the period; and, therefore, the probability that it will happen the first year, is precisely equal to the probability that it will happen the last year. And, therefore, given the probability that an event will happen once within 10 years, but that there is no greater reason to suppose that it will happen in one year rather than in another, it is evident that the mean of the term is the measure of the probability, and that, consequently, it is an even chance that the event will happen within 5 years.

Wherefore, the man who holds 3½ per cent. stock, under a guarantee against a reduction of interest for 10 years, has in reality a guarantee for 15 years; for the government being bound by the guarantee, however favourable the circumstances, 10 years must first elapse before even the probability of a reduction can commence, and at the end of that term, the given probability still being that the reduction will take place once within 10 years, and the mean of this term being 5 years, it is clear that the guarantee extends to 15 years; and if the guarantee were for 15 years, then upon the same principle it would extend to 20 years. Still, however, the gain to the fundholder is only 10 years in the case of the guarantee of 10 years, and 15 years in the case of the guarantee of 15 years, because the remaining 5 years are in the terms of the probability itself, and of which the fundholder would always have the benefit, whether there were or were not a guarantee.

And therefore, under the related circumstances, the value of a guarantee for 10 years against a reduction of interest from 3½ to 3 per cent. is the present value of an annuity of 10*s.* terminable in 10 years, and which, interest being 3½ per cent., is 4*l.* 3*s.* 2*d.*

In like manner, the value of a guarantee for 15 years is 5*l.* 15*s.* 2*d.*

And finally, the value of a guarantee for 5 years is 2*l.* 5*s.* 2*d.*

But all this, it will be said, is probability only, and not certainty. Be it so; there is, however, always so much in a probability of this nature as to stamp a certain value on a guarantee, and we will now show the value of this guarantee by another method.

An event being supposed probable, it is clear that the longer the time allowed for it to happen, the greater is the probability, and this because the greater is the number of revolutions which the same thing may undergo. Let us then suppose it so probable as to be nearly a certainty that once within 20 years the 3½ per cents. will be reduced to 3 per cents.; and let us then divide these 20 years into 5 periods of 4 years each. And then as the chance of the reduction being effected in any one particular year of the whole term is equal to the chance of its being effected in any other particular year of the same term, so is the chance of its being effected during any one of the periods of 4 years equal to the chance of its being effected during any other of the periods of 4 years. The odds are 4 to 1 that it will not take place in the first period of 4 years, and therefore the value of this probability is $\frac{1}{5}$. The odds are the same that it will not take place in the second period; but the second period being joined to the first makes two periods, and this makes the odds that the reduction will not take place within 8 years as 3 to 2, and therefore the value of this probability is $\frac{2}{5}$ It being an even chance that the reduction will take place within 10 years, the value of this probability is $\frac{1}{2}$. The value of the probability for 12 years is $\frac{3}{5}$. For 16 years it is $\frac{4}{5}$; and it being certain by the hypothesis that the event will happen once within 20 years, the value of this term is $\frac{5}{5}$, or unity.

And therefore the reduction being supposed certain once within 20 years, the value of a guarantee on 100*l.* stock for 4 years is ⅕ of the present value of an annuity of 10*s.* for 4 years, and which is distinctly set forth in the following particulars:—

Ten shillings per annum, will increase in 4 years, interest being reckoned at 3½ per cent., to . . . £2 2 2

⅕ of which sum of 2*l.* 2*s.* 2*d.* is £0 8 5

And the present value of 8*s.* 5*d.*, to be received at the end of 4 years, is 7*s.* 4*d.*

Upon the same principle, the value of a guarantee for 8 years is ⅖ of the present value of an annuity of 10*s.* for 8 years, which is 1*l.* 7*s.* 6*d.*

In like manner the value of a guarantee for 10 years is ½ of the present value of an annuity of 10*s.* for 10 years, which is 2*l.* 1*s.* 7*d.*

The value of a guarantee for 12 years is ⅗ of the present value of an annuity of 10*s.* for 12 years, which is 2*l.* 18*s.*

The value of a guarantee for 16 years is ⅘ of the present value of an annuity of 10*s.* for 16 years, which is 4*l.* 16*s.* 9*d.*

And the value of a guarantee for 20 years is the present value of an annuity of 10*s.* for 20 years, which is 7*l.* 2*s.* 2*d.*

Now nothing of this may, we believe, be contradicted, for the reduction being supposed certain within a given period, and in case of a guarantee the government having no power to reduce till after the expiration of that guarantee, however favourable the circumstances, it is manifest that the term for the reduction is delayed to all the extent of the guarantee. And therefore the value of the guarantee consists in the obligation which the government has thereby contracted, not to endeavour the reduction during the continuance of the term, however favourable the circumstances.

After the expiration of the guarantee, things are restored to their original position, and we have then the same certainty as before, viz.:—that once within 20 years the 3½ per cents. will be reduced to 3 per cents.; and then as it is 19 to 1 that the reduction will not take place in any one particular year, and 4 to 1 that it will not take place in any one particular period of 4 years, so in like manner is it 3 to 2 that it will not take place within the first 8 years; 2 to 3 that it will not take place within the first 12 years; 1 to 4 that it will not take place within the first 16 years; and an even chance that it will not take place within the first 10 years.

Now we are aware that this being a matter which depends on voluntary contingent causes, and not on the steady invariable laws of nature, cannot, like insurances on lives or any other similar thing, be reduced to accurate calculation; but as from the frequent fluctuations in the rate of interest, the changes in public affairs, and the great and growing partiality for government securities, there will most certainly arrive a state of things in which the government will be able to reduce the 3½ per cents., the only question is, as to the term of years within which the event will take place; and then so far is 20 years from being too short a period, that we think it highly probable there will be more than one opportunity to accomplish the reduction during that period, and that consequently the term of 20 years is too long.

This as regards the value of a guarantee deduced from the probability, that there will be a reduction of the 3½ per cents. to 3 per cents., within a certain determinate number of years.

But we may also deduce the value of a guarantee against reduction from the respective prices of the 3 and 3½ per cents.: for as, if both stocks were for ever guaranteed against reduction, it is clear that the difference of price would always be the difference between an annuity of 3*l.* and 3*l.* 10*s.*; so is it equally clear that, without guarantee and redeemable, by how much the difference of market-price shall diverge from the natural difference in the value of the annuity, by so much is it deemed probable that the 3½ per cents. will be reduced, and the near or distant period of the reduction is indicated by the greater or less divergence of the market-price from the natural value of the annuity.

And, now, out of these premises, there arise a few curious points to be considered and determined, as,—

1. The 3 and 3½ per cents. being both redeemable, to deduce from the respective market-prices of the two stocks by how much the probability of the reduction of the 3½ per cents. is greater than of the 3 per cents., or, in other words, to deduce from the market-price the value of a guarantee against the reduction of the 3½ per cents., to 3 per cents., the latter remaining unredeemed.

2. The 3 per cents being made for ever irredeemable, to find the value of a guarantee that shall place the 3½ per cents. on the same footing as the 3 per cents., and so, in like manner, constitute them for ever irredeemable.

3. To find the value of a guarantee of the 3½ per cents. simply against all reduction whatsoever.

4. To find the value of a guarantee, that the 3½ per cents. shall be irredeemable, till the 3 per cents. are reduced to stock of a lower denomination, and then to follow the fate of the said 3 per cents.

5. Both stocks being redeemable, to find the value of a guarantee that the 3½ per cents. shall not be reduced below 3 per cent., whatever the fate of the 3 per cents.

And now to the first case. Supposing both stocks to be irredeemable, it is visible, as already said, that there can be no other difference of price than that which arises from the difference in the annuity; and so that if the price of a 3 per cent. stock were 90, the price of a 3½ per cent. stock would be 105. But both being redeemable, if, while the price of the 3 per cent. stock is 90, the price of the 3½ per cent. should be only 98, then the difference of price being no longer commensurate with the difference in the annuity, this can only arise from the greater probability of a reduction of interest on the 3½ per cent. stock. And that this is so is manifest: for there being always a probability, great or small, that even the 3 per cents. will be reduced, and as the same power which reduces the 3 per cents. to stock of a lower denomination can also reduce the 3½ per cents. to the same denomination, but it being also in the very nature of things that the probability of the reduction of the one is less than that of the other; so is it clear that the first thing to be considered is, not the value of a guarantee of the 3½ per cents. against all reduction whatsoever, but the value of a guarantee that shall place this stock on the same footing of stability as the 3 per cents., and render it as little obnoxious to reduction. We shall then have the following state of things.

When the 3 per cents. are at 90, the difference in value between a 3 and a 3½ per cent. stock, supposing both to be irredeemable, being 15 per cent., and the difference in the market-price, when both are redeemable, being only 8 per cent.; so is it manifest, that, as indicated by the market price, the value of a guarantee in perpetuity that the 3½ per cents. shall have the same stability, and be as little liable to a reduction of interest as the 3 per cents., is 7*l*.

The value of the same guarantee for 100 years, interest being 3½ per cent., is . . .	£6	15	6
For 75 years it is . . .	6	9	5
50 ,, ...	5	14	11
40 ,, ...	5	4	8
30 ,, ...	4	10	1
25 ,, ...	4	0	9
20 ,, ...	3	9	8
15 ,, ...	2	16	5
10 ,, ...	2	0	9
5 ,, ...	1	2	1
3 ,, ...	0	13	9

This concludes the first question. The second question to be considered is the value of a guarantee of the 3½ per cents. against reduction either to 3 per cents. or to a lower denomination, while the 3 per cents. are guaranteed for ever against reduction. And as this cannot be deduced from the market price without first supposing either that there are two 3 per cents. stocks, the one redeemable and the other irredeemable, and that there is a certain difference of price between the one and the other: or if no irredeemable 3 per cent. stock exist, that by making a certain portion or the whole of that stock irredeemable, which is now subject to redemption, this would increase the value, and consequently enhance the market price of the stock.

Let there then be two such stocks: let the price of the redeemable be 90, and of the irredeemable 95. The difference of 5 per cent. will then denote the probability of the reduction, and the state of things will be as follows :—

As compared with the 3 per cent. stock that is redeemable, everything will be as in the last case. But as regards the 3 per cent. irredeemable stock, the matter will stand thus :—

That as the price of an irredeemable annuity of 3*l.* is 95 per cent., so in proportion ought the price of an irredeemable annuity of 3*l.* 10*s.* to be 110*l.* 16*s.* 8*d.* per cent., and the price of the redeemable annuity being 98 per cent., so does it follow that the value of a guarantee constituting this annuity irredeemable in perpetuity is 12*l.* 16*s.* 8*d.*; and, consequently,

The value of a guarantee for 100 years, interest being 3½ per cent., is . . .	£12	8	11
For 75 years it is . .	11	17	8
50 ,, . . .	10	11	1
40 ,, . . .	9	12	2
30 ,, . . .	8	5	6
25 ,, . . .	7	8	4
20 ,, . . .	6	7	11
15 ,, . . .	5	3	8
10 ,, . . .	3	14	10
5 ,, . . .	2	0	8
3 ,, . . .	1	5	3

This, as regards the second case. The third point to determine is the value of a guarantee of the 3½ per cents. simply and absolutely against all reduction of interest whatsoever; and this is precisely the same as the last case, where the comparison is between a redeemable 3½ per cent. stock, and a 3 per cent. stock that is irredeemable.

4. The fourth point relates to the value of a guarantee that the 3½ per cents. shall not be reduced till there is a reduction of the 3 per cents., and then to follow the fate of the 3 per cents. And here, if we consider that the resistance to a reduction of the 3 per cents. to stock of a lower denomination must in the very nature of things be greater than that of a 3½ per cent. stock; so is it evident that the value of this guarantee is the probability of the reduction of the 3½ per cents. *plus* the difference between this probability and the probability of the reduction of the 3 per cents. Now the resistance to the reduction of the 3½ per cents. is such that the value of the probability of this reduction is by the first case 7*l.*; and the resistance to the reduction of the 3 per cents. is such that the value of this probability is by the second case 5*l.*; and as it is the condition of the question that there shall be no reduction of the 3½ per cents. till the 3 per cents. are reduced, so is it evident that to the value of the probability arising from the resistance of the 3½ per cents. must be added the difference which arises from the greater resistance of the 3 per cents. In fine, in the case now under consideration, there are two probabilities differing in degree and magnitude; and then by the hypothesis the natural order of things being so inverted that the happening of that which is the most probable being made to depend on that which is the least, so is it visible that the period for the happening of the event is postponed by all the difference between the greater probability and the less; and, therefore, the value of the guarantee is the probability of the reduction of the 3½ per cents., with the addition of the difference between this probability and the probability of the reduction of the 3 per cents.; and this in perpetuity is 9*l.*, and consequently—

The value of a guarantee for 100 years, interest being 3½ per cent., is	£8	14	3
For 75 years it is	8	6	4
50 ,,	7	7	9
40 ,,	6	14	6
30 ,,	5	15	10
25 ,,	5	3	10
20 ,,	4	9	6
15 ,,	3	12	7
10 ,,	2	12	5
5 ,,	1	8	5
3 ,,	0	17	8

The fifth question to consider is the value of a guarantee that the 3½ per cents. shall never be reduced below 3 per cent., whatever may be the fate of the existing 3 per cents. And here, there being no guarantee against a reduction from 3½ to 3 per cent., but simply that there shall be no reduction below 3 per cent., so is it evident that the value of this guarantee is the value of the probability of the reduction of the 3 per cents. to a lower denomination, and this for a guarantee in perpetuity is 5*l.*, and consequently—

The value of a guarantee for 100 years, interest being 3½ per cent., is	£4	16	10
For 75 years it is	4	12	5
50 ,,	4	2	1
40 ,,	3	14	9
33 ,,	3	4	4
25 ,,	2	17	8
20 ,,	2	9	9
15 ,,	2	0	4
10 ,,	1	9	1
5 ,,	0	15	10
3 ,,	0	9	10

This is all that occurs to us on the subject of guarantees against a reduction of interest; and though we have said more, and have imagined a greater number of cases than is required on the present occasion, yet this will be of use, as it is by showing things in many and various points of view, that their nature and the principles which govern them are best understood.

As regards the matter more immediately in hand, we have set down two ways by which the value of a guarantee against the reduction of the 3½ per cents. may in some sort be ascertained: the one assuming the probability of the reduction once within a given number of years, and from this probability deducing the value of the guarantee. The other deducing the value of the guarantee from the respective market prices of the 3 and 3½ per cent. stock.

But such is the uncertainty of all human devices which rely for their production into act on voluntary contingent causes, that both these methods are defective.

The first is defective, because while it assumes not only what is reasonable, but also what is nearly certain, that once within a certain number of years the reduction will be effected; yet not being able to determine the precise year, nor even the precise section out of a division into several sections of the whole period, the value of the guarantee can never be accurately determined. But still the error is confined within certain limits: for the probability being so great, for instance, as nearly to amount to a certainty that once within 20 years there will be a reduction of the 3½ per cents., and the mean of this term being 10 years, and it being consequently an even chance that the reduction will take place in the first 10 years, any one who should act upon this supposition, and secure himself against the chance of a reduction by the purchase of a deferred annuity, that is, an annuity to commence at the end of 10 years, can never be much mistaken if even the reduction should take place before the expiration of the 10 years, and if it should be delayed beyond that period he would be a gainer.

This as regards the first method, which has this defect, that it assumes that an event will happen once within a certain number of years, but without precisely determining the year.

The second method, by deducing the value of the guarantee from the market price, assumes that precisely at the end of a certain number of years (and, therefore, in some one particular year) there will be a reduction of the 3½ per cents. For let the respective prices of the 3 and 3½ per cents. be 90 and 98, and let it be required from these prices to deduce the probability of the reduction of the 3½ per cents., we first find that the holder of the 3½ per cents. has a greater annuity by 10*s.* than the holder of the 3 per cents., and for which he pays the sum of 8*l.* Now 8*l.* divided by 10, gives a quotient of 16*s.*;—and, therefore, 16 years' purchase is paid for an annuity of 10*s.*, and which annuity is to continue till the reduction of the 3½ per cents., and then be annihilated.

All this being so, if we then take the rate of interest at 3½ per cent., we shall find that the number of years which correspond in the compound interest table to 16 years' purchase is 24. And so that founded on the principle of the market price, the probability is that at the end of 24 years, and not before, the 3½ per cents. will be reduced. Wherefore the matter resolves itself into this: that he who purchases a 3½ per cent. stock at 98, as compared with a 3 per cent. stock at 90, gives 8*l.* for an annuity of 10*s.* for 24 years, and in which he certainly must err: for that the 3½ per cents. should be reduced to 3 per cents. precisely at the end of 24 years is so wholly improbable as to be next to impossible.

But, although it is impossible from the prices of the 3 and 3½ per cents. to determine the precise period of the reduction of the 3½ per cents., yet it is always easy to determine from these prices the relative dearness or cheapness of the two stocks.

Thus, supposing the price of consols to be 96, and the price of 3½ per cents. 102, both free of dividend, and a fair market. It being evident, under these circumstances, that the 3½ per cents. may immediately be reduced to 3 per cents. at 96 per cent., so does it follow that the price of the 3½ per cents. is 2 per cent. too high; or if it should be considered that, in the reduction of the 3½ per cents., one half-year's dividend will be paid, then the price of 102 is 1½ per cent. too high.

Further, by the immediate reduction of 1,000,000*l.* of 3½ per cent. stock to 3 per cent., at the price of 96 per cent. for the latter, the government gains 3,750*l.* in annual charge, but by a reduction at par the gain in annual charge is 5,000*l.* The question therefore is, to what period may a reduction at par be deferred, and yet be equal to an immediate reduction at 96 per cent.? And this, taking the rate of interest at 3*l.* 2*s.* 6*d.* per cent., (which corresponds to the price of 96 for a 3 per cent. stock,) and half-yearly payments, we find to be 9 years 223 days; and so that a reduction at par to take place at the end of 9 years 223 days, is precisely equivalent to an immediate reduction at 96 per cent.

And, therefore, if having the opportunity of an immediate reduction at 96 per cent., the government does not avail itself of it, the reason will probably be that it reckons on being able to effect a reduction at par in a less period than the one we have mentioned.

But at the respective prices of 96 and 102 for the 3 and 3½ per cents., this is to pay 12 years' purchase for the annuity of 10*s.*; and then, taking the rate of interest at 3*l.* 2*s.* 6*d.* per cent., this supposes that the reduction of the 3½ per cents. to 3 per cent. at par will take place in 15 years 57 days. But the true calculation, as we have already seen, is such that the reduction may be supposed to take place in 9 years 223 days.

And, therefore, in the supposed case, the market prices lead to very erroneous conclusions; and keeping in view the extreme probability of a reduction at par within a reasonable period, and that at a price below par the reduction may at all times be accomplished, it may generally be affirmed that the 3½ per cents. as compared with the 3 per cents. are at too high a market.

Both rules are, therefore, defective; and this defect being in the nature of things cannot be remedied. But the first is the least defective of the two, because, knowing the impossibility of reducing to accurate calculation that which depends on moral causes, it goes upon general principles; and not being able to assign the precise year, it assigns a certain period of years within which the event will happen. And this is the true method: the thing must be determined by general principles—by the plain broad bearings of the case, and by facts and history; and if we then consider that previous to the French revolution the Dutch 2½ per cents. were considerably above par, we shall soon come to the conclusion that a period will shortly arrive when there will be no great difficulty in reducing the English 3½ per cents.

In the mean time this lengthened discussion on the nature and value of guarantees may be of some use in practice; and it being greatly probable that there will be a reduction of the 3½ per cents., and that consequently a portion of the annuity is to be considered as terminable, so to our thinking ought it to be treated as such, and the holders of this stock should endeavour to secure themselves against the event, either by the purchase of an active or deferred annuity, and to allow such annuity to increase at compound interest till it amounts to an annuity of 10*s.* in perpetuity, or to its equivalent in a terminable annuity.

And here it appears to us that the purchase of a deferred annuity is best suited to the nature of the case, because it goes upon this principle: that as one annuity becomes extinct, another is created and ready to supply its place. The deferred annuity is also the least trouble, because the intention being that money should increase at compound interest, and all the effect of compound interest from the first date of the transaction to the period when the annuity becomes active, being already in the reduced price of the purchase, so is there no trouble or expense in the investment of dividends. Taking the nature of the case into consideration, it is probably also the most advantageous: for being founded on the principle that there will be a reduction of the 3½ per cents., and this reduction implying that there will be a fall in the rate of interest on government securities, so will there be a great advantage in having secured from the outset, and in the transaction itself, the increase during a great number of years, at a higher rate of interest than if the annuity had been active, and so requiring a regular and periodical investment of dividends.

And now we must consider that one of three things will necessarily happen, as,—

1. That the deferred annuity will become active precisely at the period when the 3½ per cents. are reduced; or
2. It will become active after the reduction; or
3. It will become active before the reduction.

In the first case, a fresh annuity of 10*s.* comes into life to supply the place of another annuity to the same amount which is become extinct, and thereby the object has been completely and perfectly attained.

In the second case, there is a loss in consequence of the reduction of the 3½ per cents. being effected before the annuity becomes active, and this loss will be the present value of a deferred annuity of 10*s*. for so many years as intervene between the reduction of the 3½ per cents. and the period when the deferred annuity becomes active. Thus, supposing an annuity to have been purchased for 100 years, to commence at the end of 10 years, and that the reduction of the 3½ per cents. should precede by 5 years the period when this annuity becomes active, the loss will be an annuity of 10*s*. for 5 years deferred for 5 years, the present value of which interest, being 3 per cent. during 5 years, and 3½ per cent. during 5 years, is 1*l*. 18*s*. 6*d*.

In the third and last case there will be a gain; and this as arising from the continuance of the original annuity of 10*s*. beyond the period when the deferred annuity is brought into act; and therefore if we suppose the reduction of the 3½ per cents. to take place 5 years after the period when the deferred annuity becomes active, the gain will be the present value of an annuity of 10*s*. for 5 years deferred for 10 years, and which interest, being 3 per cent. during 5 years, and 3½ per cent. during 10 years, is 1*l*. 12*s*. 6*d*. *

In a word, let the reduction of the 3½ per cents. take place when it will, every man who, in contemplation of this event, has purchased an annuity, reaps the never-failing reward of frugality and self-denial, and by parting with the means of present enjoyment, he secures the means of greater enjoyment hereafter.

And now, by all that has been said, some idea may be formed of the value of a guarantee against a reduction of interest; and from this it results that we are within bounds when we say that, with a guarantee of 10 years, the Chancellor of the Exchequer might have borrowed money in a 3½ per cent. stock at 97½, and with a guarantee of 15 years at 98 per cent., and this will perhaps form the ground-work of a few calculations.

Thus far in way of reason and principle. We turn now to the examination of Mr. Hume's resolutions.

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* Whenever there shall be a reduction of the 3½ per cents. to 3 per cent., the loss to the annuitant being a perpetual annuity of 10*s*., it is evident that this loss is not exactly replaced by means of an annuity to the same amount for 100 years. The difference, however, is trifling; and interest being 3 per cent., an annuity of 10*s*. 11*d*. for 100 years, is equal in value to an annuity of 10*s*. in perpetuity. And from the circumstance that all annuities for terms of years are irredeemable, the end is also better attained, and there is more stability for the annuitant than in the purchase of a redeemable perpetuity.

PART II.

Examination of the Resolutions.

The first Resolution relates to the terms of the loan, and the rate of interest at which the money has been borrowed by the Chancellor of the Exchequer; and in the method of this calculation there is displayed some skill and ingenuity.

The loan being composed of three different descriptions of stock, the calculator, in order to arrive at his conclusions, reduces the whole into one stock, (Consols,) and from the price of this one stock he deduces the rate of interest at which the money is borrowed, and this he does by the ingenious method of first finding the value of the Long Annuity, and then adding to this the accrued dividend on the Reduced, and the amount of the discount for prompt payment, and deducting the whole from 100*l.*, the remainder gives the price at which the loan is contracted in Consols.

This is a very simple and ingenious method, and it is strictly correct, for by his bargain the Chancellor of the Exchequer gives 75*l.* in Consols, and 25*l.* in Reduced, and therefore 100*l.* of 3 per cent. stock for 100*l.* money, and then he throws 13*s.* 7*d.* Long Annuity, and 1*l.* 19*s.* 9*d.* for discount into the bargain; and therefore it is clear that by deducting the three items of the Long Annuity, the 3 months' dividend on the Reduced, and the discount from the 100*l.*, the remainder will be the price at which the loan is taken in Consols, that is, in a 3 per cent. stock, the dividend on which shall commence on the 5th July, 1835.

And the accuracy of this method is proved by the second Resolution, which seems in fact to have been introduced for no other purpose; for here we see the three descriptions of stock of which the loan is composed, standing at prices which tally with each other, and making, with the addition of the discount, the precise sum of 100*l.* And therefore the method adopted in these calculations is correct.

The only other thing averred in the first Resolution is that by the terms of the present loan, the money is borrowed at a rate of interest of 3*l.* 9*s.* 5*d.*, or accurately 3*l.* 9*s.* 4$\frac{67}{100}$*d.* per cent., and which clearly follows from the price of 86*l.* 9*s.* 5*d.*, at which the loan is shown to be made in Consols, because this price gives exactly 3*l.* 9*s.* 4$\frac{67}{100}$*d.* per cent. interest for money. And though, according to the real facts of the case, the Chancellor of the Exchequer, by allowing a discount of 1*l.* 19*s.* 9*d.* gives 75*l.* Consols, 25*l.* Reduced, and

13*s*. 7*d*. Long Annuity, in consideration of 98*l*. 0*s*. 3*d*., yet this only changes the terms of the calculation, but leaves the same result, as may be shown in a moment, for when reckoned this way, it will stand thus:—

£75 Consols						
25 Reduced						
£100 3 per cent. stock for				£98	0	3 money.
Deduct						
13*s*. 7*d*. Long Annuity	£11	7	1			
3 months' interest on Reduced . . .	0	3	9			
				11	10	10
Remains				£86	9	5

And, therefore, we have exactly the same price for the loan in Consols as by the former calculation, and therefore the same rate of interest.

If we would see the price of the loan in Reduced, then we must set things down after the following manner:—

£75 Consols			
25 Reduced			
£100 of 3 per cent. stock for	£98	0	3 money.
Add 15*s*. per cent. on 75*l*. Consols for 3 months' less dividend due on Consols than on Reduced . . .	0	11	3
	£98	11	6
Deduct the value of the Long Annuity	11	7	1
Remains . .	£87	4	5

And, therefore, the price of this loan is 86*l*. 9*s*. 5*d*. in Consols, with dividend from 5th July, or 87*l*. 4*s*. 5*d*. in Reduced, with dividend from 5th April, and these two prices are equivalent, because the three months' difference in the dividend compensates exactly for the difference of price, and so that whether the Chancellor of the Exchequer had made the whole of his loan in Consols at 86*l*. 9*s*. 5*d*., the dividend to commence from the 5th of July, or in Reduced at 87*l*. 4*s*. 5*d*. the dividend to commence from the 5th of April, would, as to the real charge on the country, have been the same thing.

And now we must point out an error in the calculation of the first Resolution, which, however, is so trifling, that it has little or no influence on the final results. This error is in the value of the Long Annuity, which appears to have originated in the following manner:—the calculator had to draw a comparison between the Long Annuity and Consols, and there being, when the comparison was made, 3 months' more dividend due on the Long Annuity than on Consols, the calculator sets down 5*s*. for this quarter's dividend, to be added to the naked value of the annuity, and he then takes the term of the annuity from the payment of the last half-year's dividend, and so makes it an annuity of 24¾ years, with the addition of 5*s*. for the accrued 3 months' dividend; and which is clearly erroneous; because when the comparison was made with Consols in July, this was not an annuity of 24¾ years, with the addition of 5*s*. for accrued dividend, but it was an annuity of only 24½ years, with the addition of 5*s*. for accrued dividend.

Now the value of an annuity of 1*l*. for 24½ years, interest being reckoned at 3*l*. 9*s*. per cent. is . . .	£16	7	3
Add for 3 months' dividend . . .	0	5	0
	£16	12	3

And then the first calculation, when duly rectified, will stand thus:—

£75 Consols				
25 Reduced.				
£100 of 3 per cent. stock for	£100	0	0	money.

Also 13*s*. 7*d*. of Long Annuities of the value of 16*l*. 12*s*. 3*d*. for 1*l*.	£11	5	8			
And 3 months' interest on Reduced	0	3	9			
Discount for prompt payment	1	19	9			
				13	9	2
Leaving .				£86	10	10

in money as the price of every 100*l*. of Consols, which is equal to a rate of interest of 3*l*. 9*s*. 3$\frac{97}{100}$*d*. per cent.

The second Resolution when rectified will stand as follows:—

£75 Consols at	£86 10 10	£64 18 1¼
25 Reduced at	87 5 10	21 16 5½
13*s*. 7*d*. Long Annuity	16 12 3	11 5 8
Discount for prompt payment	.	1 19 9
		£100 0 0

And there is, we believe, no doubt that these calculations are correct, because here are three net prices and sums which square to each other, the aggregate of which, with the addition of the discount, make 100*l*.

Now that these prices square to each other may be shown in an instant: for, first, the Consols and Reduced being both a 3 per cent. stock, it is manifest of itself that when the price of Consols is 86*l*. 10*s*. 10*d*. per cent., the real value of Reduced, with the addition of three months' dividend, is 87*l*. 5*s*. 10*d*. And next, the rate of interest being 3*l*. 9*s*. per cent., the present value of 1*l*. per annum, during 24½ years, is 16,3590 years purchase, which is 16*l*. 7*s*. 3*d*., and making with the addition of 5*s*. for the 3 months' dividend 16*l*. 12*s*. 3*d*., which is consequently the value of the long annuity.*

This as regards the two first Resolutions.

The third Resolution requires no observation.

The fourth Resolution, in consequence of the small error in the first, requires revision, and when duly corrected will appear thus:

That if the whole of the loan had been in one stock, and that stock Consols, at the price of 86*l*. 10*s*. 10*d*., the gross amount of 3 per cent. stock, added to the debt of the country, would be 17,332,692*l*., and the perpetual annual charge for the same 519,981*l*., payable from the 5th July, 1835.

Now this Resolution, though it appears to express only a condition of proviso, does in point of fact denote an equivalency, which amounts to this: that though there are three descriptions of stock comprised in the loan, yet the terms of this loan are such as to be equivalent to the borrowing of the money in one stock (Consols) at the price of 86*l*. 10*s*. 10*d*. per cent., and thereby adding a sum of 17,332,692*l*. to the capital of the debt of the country, and an annual charge of 519,981*l*. for interest.

And there can be no doubt of the truth of this Resolution, because that the terms of the loan are equivalent to what is here stated, is demonstrated by the first and second Resolutions.

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* See Note (1) at the end.

But then it will be objected that this includes the discount, which on the whole loan amounts to 298,125*l.*, and which at 86*l.* 10*s.* 10*d.* per cent. represents a capital of 344,487*l.*, in Consols, and a charge of 10,333*l.* 12*s.* for interest, whereas no stock was created for the discount.

But this will make no difference: for how stands the fact? The Chancellor of the Exchequer wants 15,000,000*l.* of money, to satisfy the claims of the West Indian planters, but by allowing a discount he does not get 15,000,000*l.* out of this loan, but only 14,701,875*l.*, and, therefore, he is deficient to the extent of 298,125*l.*, and this deficiency he can only make good by one or both of the following methods:

1. By borrowing.
2. By supplying the deficiency out of the surplus revenue of the country.

But to borrow the 298,125*l.* is to do the very thing which is said to be done by the terms of the Resolution; and then the only difference that can possibly arise, is whether the borrowing be on worse or better terms than those of the present loan, and this upon so small an amount is not deserving the least consideration.

If the Chancellor of the Exchequer should not borrow, but supply the deficiency by means of the surplus revenue of the country, this, in event, comes to precisely the same thing as if he had borrowed: for had it not been intercepted in its progress, and turned aside from its original destination, this surplus revenue would, in the natural course of business, have gone to the Commissioners of the sinking fund, to be by them employed in the extinction of debt: and then the inference is obvious, and it is we believe sufficiently plain and certain, that to prevent old debt from being extinguished is precisely equivalent to the contracting of new debt; and this because a debt remains the same, which in the usual and ordinary course of things, ought to have been diminished.

And, therefore, it is every way apparent that the discount must be considered as a charge, and that an amount of stock answerable to the amount of this discount must be added to the capital of the debt, together with a proportionate increase in the annual charge for interest.

But if even the discount were left out, it would make nothing to the matter, and the sense of the Resolution would still abide, and its truth remain unchanged; for then the loan, with reference to this fourth Resolution, would stand after the following manner:—

£11,250,000	Consols.	
3,750,000	Reduced.	
£15,000,000	stock for . .	£15,000,000
	Deduct discount .	298,125
	Remains . .	£14,701,875

And thus, in consideration of the sum of	£14,701,875
in money, there is first created in 3 per cent. stock a capital of	£15,000,000
The 3 months' dividend on the 3,750,000*l.* Reduced is 28,125*l.*, which at the price of 86*l.* 10*s.* 10*d.*, will purchase in Consols .	32,499
The 101,875*l.* Long Annuity at 61*l.* 12*s.* 3*d.* will produce in money, 1,692,398*l.* 9*s.*, which at the price of 86*l.* 10*s.* 10*d.* per cent. will purchase in Consols	1,955,588
	£16,988,087

A capital of 16,988,087*l.* in Consols being thus given in consideration of a sum of 14,701,875*l.* in money, this establishes a price of 86*l.* 10*s.* 10*d.* per cent.

Further, to give a capital of 16,988,087*l.* in Consols, in consideration of 14,701,875*l.* in money, is to give 115*l.* 11*s.* in stock for 100*l.* in money, and this again establishes a price of 86*l.* 10*s.* 10*d.* for Consols.

Finally, a capital of 16,988,087*l.* in a stock bearing 3 per cent. interest being given in consideration of a sum of 14,701,875*l.* in money, this is to borrow at a rate of interest of 3*l.* 9*s.* $3\frac{97}{100}$*d.* per cent., the dividend to commence from the 5th of July, 1835.

The truth of this Resolution therefore remains unchanged; and to give a capital of 16,988,087*l.* in Consols, in consideration of the sum of 14,701,875*l.* in money, is precisely equivalent to the terms of the Resolution, whereby a capital of 17,332,692*l.* in Consols is given in consideration of a sum of 15,000,000*l.* in money.

Nor in another point of view will the thing suffer the least question, for the object of Mr. Hume is to compare and state the difference between the terms of the present loan, and a loan in New 3½ per cents. at the price of 97; and as in his statement of a loan contracted in 3½ per cents. he also brings in the discount as a charge, if men will be so ridiculous as to suppose that the discount on a loan is no charge on the state, and that it therefore must be deducted in the present instance, so must it also be deducted from Mr. Hume's statement regarding a loan in a 3½ per cent. stock. But the fact is, that it cannot with any consistency be left out either of the one or the other, because every discount lessens the price obtained for stock, and is therefore a charge on the public which must be brought to account.

Come we now to the fifth Resolution, which when the small error is rectified, which results from the over-valuation of the Long Annuity, will stand as follows:—

That the terms of the present loan are equivalent to a loan of the whole sum in 3 per cent. Reduced, at the price of 87*l*. 5*s*. 10*d*. per cent., thereby adding 17,183,771*l*. to the capital of the debt of the country, and 515,513*l*. to the annual charge for interest, payable from the 5th of April, 1835.

Now this Resolution cannot be contradicted; for it having been shown by the first and second Resolutions, that the terms of the loan are equivalent to a price of 86*l*. 10*s*. 10*d*. per cent. in Consols, and the real value of Reduced in consequence of the 3 months' accrued dividend being 15*s*. per cent. more than Consols, it is clear that the price of the loan in Reduced, with dividend from 5th April, 1835, is 87*l*. 5*s*. 10*d*. per cent. And then all the other consequences follow, and a capital of 17,183,771*l*. in Reduced, with a dividend of 515,513*l*., commencing the 5th of April, 1835, is equivalent to a capital of 17,332,692*l*., in Consols, and a dividend of 519,981*l*., which commences only on the 5th of July, 1835, and therefore 3 months later.

The sixth resolution, when rectified, is to the effect that the terms of the present loan are equivalent to a loan of the whole sum in Long Annuities, at an annual charge of 902,935*l*., terminating in January, 1860.

Now this Resolution is also correct: for it having been proved by the first Resolution, that the value of the Long Annuity is 16*l*. 12*s*. 3*d*., it of course follows that 902,935*l*. in Long Annuity is worth 15,000,000*l*., the amount in money of the loan; and then 15,000,000*l*. in money being equivalent under the terms of the loan to 17,332,692*l*. in Consols, or to 17,183,771*l*. in Reduced, it also follows that the 902,935*l*. Long Annuity is equivalent to either of these capitals in Consols or Reduced; and so that in final result these three terms, 902,935*l*. in Long Annuity, 17,332,692*l*. in Consols, and 17,183,771*l*. in Reduced, stand in exact relation to each other, and each, under the terms and conditions of the loan, is equivalent to 15,000,000*l*. in money.

This, as regards the terms of the late loan. And now

Mr. Hume comes to comparisons, and in the following Resolutions he states what would have been the position of things if the money had been raised in new 3½ per cents. And in the seventh Resolution he states that if this had been done, and that the money had been borrowed at the price of 97 per cent., with the same allowance for discount as by the present loan, this price of 97 would have left a net price after discount of 95*l.* 1*s.* 7*d.* in money for every 100*l.* stock: that thereby the capital added to the debt of the country would have been 15,776,327*l.*, and the increase in the annual charge 552,171*l.* 9*s.*, being a rate of 3*l.* 13*s.* $7\frac{47}{100}$*d.* per cent. for money.

All which is most undoubtedly correct; and though we were first induced to believe that there was a small error in the calculation of the discount, yet, upon a nearer view of the case, we found that we were mistaken, and that the sum allowed for discount is perfectly accurate: for the first instalment on the present loan was 10 per cent., and was payable on the 6th of August, 1835; and the last instalment was on the 13th of September, 1836. And therefore the interval between the first and the last instalment is 403 days; and consequently had the loan been contracted in a 3½ per cent. stock at 97 per cent., with the same conditions respecting discount as by the present loan, there would have remained, after the payment of the first instalment on the 6th of August, a sum of 87*l.* for the remaining instalments; and the interest on 87*l.* for 403 days at 2 per cent. is 1*l.* 18*s.* 5*d.*, which, deducted from the gross price of 97*l.*, leaves exactly a net price of 95*l.* 1*s.* 7*d.* according to the terms of the Resolution.

In the eighth Resolution there is a small error arising from the mistake in the valuation of the Long Annuity to which we have before alluded; and this error being rectified, the terms of the eighth Resolution will stand thus:—

"That the capital stock created by the present loan, being equivalent to 17,332,692*l.* when computed in Consols, and the capital, if the money had been borrowed in a 3½ per cent. stock, being only 15,776,327, the increase in the capital of the debt, occasioned by the present loan, as compared with a loan in a 3½ per cent. stock, is 1,556,365*l.*"

All which is so true as to leave no place for doubt or controversy.

The ninth Resolution shows the difference between the present loan, and a loan in new 3½ per cents., supposing such 3½ per cents. to be reduced to 3 per cents. at the end of 15 years, and which results in a loss to the public of a difference of interest, or, in other words, a permanent annuity of 6*s*. 11½*d*. per cent. on 15,000,000*l*.

But, before we come to further remarks on this Resolution, it is necessary to premise, that the same small error in the value of the Long Annuity, which we have been obliged to rectify in the preceding Resolutions, it is also necessary that we should rectify in the present; and then when duly corrected, the result of this eighth Resolution will stand thus :—

The rate of interest on the present loan is		£3 9 3 $\frac{97}{100}$
The rate of interest on a 3½ per cent. stock, reduced to a 3 per cent. stock, at the end of 15 years, is	£3 0	
Add the perpetual annuity arising from the loss of 4*l*. 2*s*. 10*d*., being the accumulation of the excess of interest of 4*s*. 3½*d*. per cent. during 15 years . .	2 5$\frac{82}{100}$	
		3 2 5$\frac{82}{100}$
Showing a difference of .		£0 6 10 $\frac{15}{100}$

And then the calculation will be correct; and so that the difference arising from the mistake in the value of the Long Annuity is, in final result, so trivial and insignificant, that, had we not imposed upon ourselves the task of dealing strictly and rigidly, we should have left it altogether unnoticed.

But now a few observations are necessary. We have said that the calculations in this Resolution are correct, and this most assuredly is true; but still there is an error of fact, or rather of position. It is said, for instance, that the loan in a 3½ per cent. stock will, after its reduction, carry an interest of only 3 per cent., and this no one will contradict: but then it must be remembered that the money of this loan not having being borrowed at par, but at 95*l*. 1*s*. 7*d*. per cent., an additional capital was created by giving 105*l*. 3*s*. 6*d*. stock for 100*l*. money, and so that the whole capital created was 15,776,327*l*., and the rate of interest at which the money was borrowed was 3*l*. 13*s*. 7$\frac{47}{100}$*d*. per cent. It is therefore evident, that whenever a reduction of interest takes place, although this is a reduction of 10*s*. per cent., yet this reduction does not take place upon 3*l*. 10*s*., but upon 3*l*. 13*s*. 7$\frac{47}{100}$*d*. in a 3½ per cent. stock, being the rate of interest at which the money was borrowed; and then the interest which will still continue to be paid on this loan, after the reduction has taken place, will not be 3*l*. 0*s* 0*d*. per cent., as stated in the resolution, but 3*l*. 3*s*. $1\frac{26}{100}$*d*. per cent. In short, the annual charge on the 3½ per cents. after reduction is 473,290*l*., and the sum received in consideration of this charge being 15,000,000*l*.; this is a rate of interest of 3*l*. 3*s*. $1\frac{26}{100}$*d*. per cent.

This is therefore an oversight on the part of the person who made these calculations, and which is the more remarkable, not merely from the accuracy of the preceding calculations, but also from the great importance, and that very justly, which, throughout the Resolution, is attached to the addition of capital to a debt; and yet in this Resolution, the consequences of this addition to capital are entirely lost sight of, and the calculation is made as if the money had been borrowed in a 3½ per cent. stock at par, instead of being borrowed at 95*l*. 1*s*. 7*d*. per cent. In short, the calculator seems merely to have kept in view the effect of the general abstract proposition of a reduction of interest from 3½ to 3 per cent., and which is the true principle in all cases where a loan has been taken at par, but to all the extent that the net price of the loan deviates from par must the principle be modified.

In true and accurate result, therefore, the ninth Resolution will stand thus:—

The rate of interest on the present loan is				£3	9	$3\frac{97}{100}$
A reduction of interest of 10*s*. per cent., on money borrowed at 3*l*. 13*s*. $7\frac{47}{100}$*d*. reduces the rate of interest to . . .	£3	3	$1\frac{26}{100}$			
Add the perpetual Annuity arising from the loss of 4*l*. 2*s*. 10*d*. being the accumulation of the excess of interest during 15 years	0	2	$5\frac{82}{100}$	£3	5	$7\frac{8}{100}$
Remains . .				£0	3	$8\frac{89}{100}$

This must therefore be rectified; and then as the tenth Resolution depends entirely on the ninth, it will save time and trouble if we correct both together; and then in final and accurate result, it seems, to our thinking, that the whole matter stands in the following particulars.

The annual charge for interest on a capital of 15,776,327*l*. at 3½ per cent. is	£552,171
Carried forward	£552,171

Brought forward	£552,171
The annual charge for interest on the present loan, is	519,981
Difference . .	£ 32,190

Which difference of 32,190*l.* per annum will increase in 15 years, interest being reckoned at 3½ per cent., to a capital of 621,128*l.*

And which capital of 621,128*l.*, interest being reckoned at 3 per cent., constitutes a permanent annuity of 18,634*l.*

When the 3½ per cents. are reduced to 3 per cents., there will be an annual charge of 3 per cent. on a capital of 15,776,327*l.*, amounting to	£473,290
Add the perpetual annuity arising from the loss of 621,128*l.*, being the accumulation of the excess of interest during 15 years . .	18,634
Annual charge after reduction	£491,924
Annual charge by the present loan	519,981
Difference .	£ 28,057

And, therefore, supposing the 3½ per cents. to be reduced to 3 per cents. after 15 years, the difference between the terms of the present loan, and a loan in new 3½ per cents. at 97, reduced by discount to a net price of 95*l.* 1*s.* 7*d.*, is 28,057*l.* in the annual charge, and constituting at 3 per cent. interest a capital of 935,233*l.*

And this is the true way to consider the matter; but if we would know the present value of this annuity of 28,057*l.*, which is reversionary, or deferred for 15 years, then, interest being reckoned at 3½ per cent. during 15 years, and at 3 per cent. for ever after, the present value of an annuity of 28,057*l.* deferred for 15 years, is 558,232*l.*

Thus have we got through ten of the Resolutions. The two which remain will require little or no comment.

The twelfth Resolution is affected not merely by the error of calculation in the first Resolution, but also by the error of position in the ninth; and when duly rectified it will be to this effect:—that if the Chancellor of the Exchequer had made his loan in 3½ per cent. stock at 97, and that at the expiration of 15 years this stock were reduced to 3 per cent., this would be equivalent, dating from that period, to a loan in Consols at 91*l.* 18*s.* 9*d.* per cent., as may easily be shown: for it has been proved that the loss by the present loan will, after 15 years, be a perpetual annuity of 28,057*l.*, and that the value in capital of this annuity will be 935,233*l.*, and therefore it will be the same as if 17,332,692*l.* Consols—the amount by equivalency of the present loan—should have been sold, not for 15,000,000*l.* but for 15,935,233*l.*, which is 91*l.* 18*s.* 9*d.* per cent. This is how the matter will stand after 15 years; but if it be required to know how the matter stands at present, then the price is 89*l.* 15*s.* 3*d.* per cent., inasmuch as interest being reckoned at 3½ per cent., the present value of 5*l.* 7*s.* 11*d.*—which is the difference after 15 years—is 3*l.* 4*s.* 5*d.*, which is the present difference. In short, the gain on the 3½ per cents. in present value being 558,232*l.*, it is precisely as if 17,332,692*l.* Consols, had been sold for 15,558,232*l.*, which is a price of 89*l.* 15*s.* 3*d.* per cent.

This is, then, the real state of the matter, according to Mr. Hume's Resolutions: but this gentleman having kept within great bounds, we will now endeavour to ascertain the position of things according to the true and real facts of the case.

We have shown pretty clearly that it would have been easy to have borrowed in new 3½ per cents., at the gross price of 97, (being the price mentioned in the Resolutions,) without any guarantee whatever; that is, without any other guarantee than that which this stock already enjoys, and which was for the term of 5 years, at the period when the present loan was contracted. And, therefore, taking the price of 97, the foundation of Mr. Hume's Resolutions ought to have been 5 instead of 15 years, and then things would have stood after the following fashion:—

The annual charge for interest on a capital of 15,776,327*l.* at 3½ per cent., is . .	£552,171
The annual charge for interest, on the present loan, is	519,981
Difference . .	£ 32,190

Which difference of 32,190*l.* per annum, will increase in 5 years, interest being reckoned at 3½ per cent., to a capital of £172,611

And which capital of 172,611*l.*, interest being reckoned at 3 per cent., constitutes a permanent annuity of £ 5,178

When the 3½ per cents. are reduced to 3 per cents., there will be an annual charge of 3 per cent. on a capital of 15,776,327*l.*, amounting to . . .	£473,290
Add the perpetual annuity arising from the loss of 172,611*l.*, being the accumulation of the excess of interest during 5 years	5,178
Annual charge after reduction . .	£478,468

Brought forward	£478,468
Annual charge by the present loan . .	519,981
Difference . .	£ 41,513

And therefore, supposing the 3½ per cents. to be reduced to 3 per cents. after 5 years, the real loss by the present loan, as compared with a loan in new 3½ per cents., is an increase after 5 years, in the annual charge for interest, of 41,513*l.*, which is equivalent to a capital of 1,383,767*l.*, to be received at the end of 5 years, the present value of which is 1,165,094*l.*

Now, that this is the true way to consider the matter seems pretty evident, because though the longer the term is prolonged, the greater is the chance of a reduction, and that consequently there is a greater chance of the reduction of the 3½ per cents. once within 10 years, than within 5, and that the chance is still greater once within 15 years; yet is there always a pretty strong probability that a reduction will be practicable once within 5 years; and therefore Mr. Hume would be justified in taking this term as the basis of his calculations, or if he should prolong the term of the reduction either to 10 or 15 years, by means of a guarantee, then, in consideration of this guarantee, he would have a right to insist on a higher price of the stock: for the price of 97 being the price to which he is entitled, without any other guarantee than that which the stock already enjoys, it is clear that if he should grant a further guarantee without requiring an increased price, this would be to grant a guarantee without any consideration whatever. And this brings us to a new view of the question, and to consider what would be the position of things, and their final results, if we compare the terms of the present loan with a loan in new 3½ per cents., at the price of 97½ per cent., under a guarantee of 10 years against a reduction of interest, and which guarantee would consequently extend 5 years beyond the term of the guarantee which the stock already enjoys. This point we will therefore presently discuss, but we will first show the results of things at the price of 97, (which is the price taken in Mr. Hume's Resolutions,) in case the reduction should not be effected in 5 years, but at a more distant period.

If, then, the reduction should not be effected within 5 years, but at the end of 10 years, the loss by the present loan, as compared with a loan in new 3½ per cents., will be an increase in the annual charge after 10 years of 35,362*l.*, which is equivalent to a capital of 1,178,733*l.*, to be received at the end of 10 years, the present value of which is 835,626*l.*

If the reduction should take place at the end of 15 years, the loss, as we have shown before, will be an increase in the annual charge after 15 years of 28,057*l.*, which is equivalent to a capital of 935,233*l.* to be received at the end of 15 years, the present value of which is 558,232*l.*

If the reduction should take place at the end of 20 years, then the loss will be an increase in the annual charge after 20 years of 19,381*l.*, which is equivalent to a capital of 646,033*l.*, to be received at the end of 20 years, the present value of which is 324,674*l.*

If the reduction should take place at the end of 25 years, then the loss will be an increase in the annual charge after 25 years of 9,077*l.*, which is equivalent to a capital of 302,567*l.*, to be received at the end of 25 years, the present value of which is 128,029*l.*

And therefore, according to Mr. Hume's Resolutions, if even the actual reduction should not take place till after 25 years, yet the loss by the present loan, as compared with a loan in new 3½ per cents., will be a loss of 9,077*l.* per annum for ever to the public, commencing from the end of the said 25 years, the present value of which is 128,029*l.*

At the end of 29 years, the two things in comparison so nearly coincide, that it becomes almost a matter of indifference whether to accept the terms of the present loan or to contract a loan in new 3½ per cents. at the price of 97 per cent., and which 3½ per cents. should be reduced to 3 per cents. at the end of 29 years.

And now it must be considered that, though the present loan is contracted on such terms that the annual charge for interest is less by 32,190*l.*, than if it had been contracted in a 3½ per cent. stock, according to Mr. Hume's Resolutions, yet the public derive no benefit whatever from the circumstance, because the whole of the difference is supposed to be employed as a sinking fund to increase at compound interest, in order to diminish the difference between the two loans which ensues upon the reduction of the 3½ per cents.

And so that while during 15 years the annual charge to the public on the present loan is by the hypothesis precisely the same as if it had been effected in 3½ per cents., yet at the end of the term there is still a most enormous difference.

Now, that this is precisely as we have represented it, may be shewn in a moment: for let there be no accumulation of the 32,190*l.* difference of annuity at compound interest, and then at the end of 15 years, or any other term, when the 3½ per cents. shall be reduced to 3 per cents., the capital of the debt will be 15,776,327*l.* and the annual charge for interest 473,290*l.*, while the capital of the debt of the present loan will still be 17,332,692*l.* and the charge for interest 519,981*l.* And so that there will be the enormous difference of 1,556,365*l.* in the capital of the debt, and 46,691*l.*, in the annual charge for interest.

This is, then, the state of things upon the supposition that there should be no increase of the 32,190*l.* excess of annuity at compound interest, and in the present case this supposition turns out to be the fact: because however sound in theory and conformable to the true principles of calculation, that the difference of annuity is set apart to accumulate at compound interest as a set off against the advantage to be gained by a reduction of the 3½ per cents., yet it has no foundation in fact, for neither is there a special sinking fund applicable to this part of the debt and for this purpose, nor is there in reality a regularly-endowed sinking fund for any purpose whatever; and therefore whether at the end of 5, or 10, or 15 years there shall be a reduction of the 3½ per cents., the whole matter in comparison will stand thus:—that the capital of the debt will be 1,556,365*l.* and the annual charge for interest 46,691*l.* more than if the loan had been contracted in new 3½ per cents.*

This is, therefore, the true and real position of things, divested of all calculations of compound interest, and which, under our present scheme of finance, have so little existence in fact that they are not worth the considering; and this brings us to a new view of the question.

It is generally objected, that to raise money by loan is to ease the present generation at the expense of posterity; which however can hardly be true: for as the man who mortgages his estate, and encumbers it with a rent-charge, entails no greater burden on his successor than that which himself supports; so when the present generation raises money by public loan, and thereby contracts debt, it entails no greater charge for interest on the succeeding generation than that which itself has supported. But it may entail less, and this is the principle of Mr. Hume's Resolutions, and according to which, the charge on posterity is less than on the present generation: for by the present loan a debt is contracted of 17,332,692*l*., with an annual charge for interest of 519,981*l*. But by Mr. Hume's resolutions a debt is contracted of 15,776,327*l*. with an annual charge for interest of 552,171*l*. Now this excess is paid by the present generation, for the express purpose of a reduction hereafter, and when this reduction takes place, the annual charge, on the 3½ per cents., will be less by 46,691*l*. than the charge on the present loan.

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* We merely state this as a fact, but we do not use it as an argument. The annual charge on the present loan previous to the reduction, is 32,190*l.* less than on the 3½ per cents. Now if this annuity of 32,190*l.* be not set aside to increase at compound interest, then to the same extent will the taxes be less than if the loan had been in 3½ per cents., and provided the interest yielded by the public funds be not higher than the general rate of interest on private securities, it is certain that as much advantage is derived from the remission of taxes as from the operations of a sinking fund.

Wherefore, the plain practical common-sense view of the matter is this:—that the present generation sustains a burden of 32,190*l*. per annum during a certain number of years, to the end and intent, that their posterity may be relieved not only from this burden of 32,190*l*., but also from a further burden of 46,691*l*. for ever.

This is therefore to borrow money in a terminable annuity, but upon an improved principle; for, upon all ordinary principles, when money is borrowed in a terminable annuity, this, as compared with a loan in a perpetuity, is to bear a heavy burden during a certain determinate number of years, in order to be relieved from a lighter burden for ever: but here, the principle is to sustain a heavy burden during a certain number of years, in order to be relieved from a still greater burden for ever.

We have said that there is no regularly-endowed sinking fund in this country, and this is true; and though there is annually a reduction of the public debt by means of surplus income over expenditure, yet this is so small in amount, that if even the debt should remain as it now stands, and receive no further addition from future loans for occasional purposes, it would require probably 400 years to extinguish it under the present system. And therefore, of the 32,190*l*. less annual charge by the present loan as compared with a loan in the new 3½ per cents., not more than 80*l*. per annum will accumulate at simple interest during the period that shall elapse before the reduction of the 3½ per cents., and this is so trifling as to be wholly undeserving of notice.

And therefore at the period when there shall be a reduction of the 3½ per cents., the matter in comparison between the present loan and a loan in new 3½ per cents. will stand precisely as we have already stated, and the difference will be 1,556,365*l*. in the capital of the debt, and 46,691*l*. in the annual charge for interest.

But while there is a very small reduction of the public debt by means of the sinking fund, there is a gradual and more considerable reduction by the voluntary conversion of permanent debt into annuities for terms of years. And this to all real practical purposes is a sinking fund: for to support a sinking fund, taxes must be imposed, and here, in like manner, taxes must be imposed in order to defray, during a certain number of years, the greater charge of a terminable annuity as compared with the perpetuity. A conversion of permanent debt into terminable annuity is therefore in reality the same thing as a sinking fund; and now mark the result in the present case.

Whenever there shall be a reduction of the 3½ per cents. to 3 per cents., both stocks will be incorporated into one, and the capital of the debt of the present loan being 17,332,692*l*., and the capital, if the loan had been in new 3½ per cents. being 15,776,327*l*., the difference is 1,556,365*l*.; and then upon the principle of an extinction of the public debt by means of a conversion into terminable annuities, the loss arising from the additional capital may be easily ascertained and be placed in a new light: for according to the government tables, whereby these conversions are regulated, a capital of 1,556,365*l*. in a 3 per cent. stock at par will purchase an annuity of 88,907*l*. terminable in 25 years.

If we next suppose the price of the stock to be 95 per cent., then, according to the same tables, a capital of 1,556,365*l*., in a 3 per cent. stock, will purchase an annuity of 86,054*l*., terminable in 25 years.

And finally, if we suppose the price of the stock to be 90 per cent., then a capital of 1,556,365*l*. in a 3 per cent. stock will purchase an annuity of 82,747*l*. terminable in 25 years.

Of all these different suppositions, the first which makes the annuity amount to 88,907*l*. must, in the nature of things, be nearest the truth; because, after the reduction of the 3½ per cents. to 3 per cents. it is highly improbable, except during a period of war, or the interposition of extraordinary and adverse circumstances, that the price of the 3 per cents. should be much if any thing below par.

It must also be remembered, that it is precisely when the funds are highest that conversions from permanent into temporary annuities are most frequent, and to the greatest extent, and for this there appears to be two reasons:—

1st. As every rise in the price of stock diminishes the income to be derived from a given capital, it necessarily happens, that all persons who require a certain amount of income are driven to seek that in the temporary annuity which is denied them in the perpetuity.

2nd. From the constant vicissitudes in human affairs, and that things seldom continue long in one stay, men are always prone to believe that after a rise in the rate of interest there will be a fall, and that after a fall there will be a rise; and it being comparatively more advantageous to buy a terminable annuity when the rate of interest is low with the prospect of a rise, than to buy the same annuity when the rate of interest is high with the prospect of a fall, so is this probably another reason why a demand for the temporary annuity is greatest when the permanent debt is highest.

It will not perhaps be amiss to set this forth somewhat more clearly and distinctly by means of examples and calculation.

The rate of interest being 4 per cent., the sum of 1000*l.* will purchase an annuity of 64*l.* 0*s.* 3*d.* terminable in 25 years; and if the same rate of interest continue to the end of the term, the owner of this annuity may expend 40*l.* per annum, and regularly investing his surplus dividend of 24*l.* 0*s.* 3*d.*, this will increase in 25 years to 1000*l.*, and so replace his original capital when the annuity becomes extinct.

But if the rate of interest should fall to 3 per cent. immediately after the purchase of the annuity, it will be necessary to invest 27*l.* 8*s.* 7*d.* per annum, in order to secure the return of the original capital. This reduces the sum which the annuitant may expend from 40*l.* to 36*l.* 11*s.* 8*d.*, and to this extent is his power diminished.

On the other hand, the rate of interest being 3 per cent. the sum of 1000*l.* will purchase an annuity of 57*l.* 8*s.* 7*d.* terminable in 25 years, and if the rate of interest continue the same to the end of the term, the annuitant may expend 30*l.* per annum, and the remaining 27*l.* 8*s.* 7*d.* will increase in 25 years to 1000*l.*, and to secure the return of the original capital when the annuity becomes extinct.

But if the rate of interest should rise to 4 per cent. immediately after the purchase of the annuity, then, as the investment of 24*l.* 0*s.* 3*d.* will be sufficient to secure the return of the original capital of 1000*l.*, so is the disposable income of the annuitant raised from 30*l.* to 33*l.* 8*s.* 4*d.*, and to this extent also is his power increased.

The power of the annuitant being therefore in the first case diminished to the extent of 3*l.* 8*s.* 4*d.*, and being in the second case increased to the same extent, it follows that it is comparatively more advantageous to purchase an annuity at a low rate of interest with the prospect of a rise, than to purchase the same annuity at a high rate of interest with the prospect of a fall.

But though this is the state of the matter comparatively, yet when taken in a simple and absolute point of view, the benefit of the first purchase at a high rate of interest is never wholly got rid of by the subsequent fall: for, notwithstanding the fall to 3 per cent., the annuitant at the originally high rate of interest of 4 per cent. has still a disposable income of 36*l.* 11*s.* 8*d.*, while the annuitant at the originally low rate of interest of 3 per cent. has only a disposable income of 33*l.* 8*s.* 4*d.*, and this though the rate of interest has risen to 4 per cent. And, therefore, such is the advantage of the first purchase at a high rate of interest, that, notwithstanding the gain of the one, and the loss of the other, by the respective variations in the rate of interest, there is still this difference between them.

It deserves, however, to be noticed, that if no part of the two annuities were expended, but that the whole should accumulate at compound interest, then the annuity purchased at 3 per cent. interest, with an immediate rise to 4 per cent., will have increased at the end of 25 years to a larger sum than the annuity at 4 per cent. with an immediate fall to 3 per cent., as may very easily be shown: for,

The rate of interest being 4 per cent. the sum of 1000*l.* will, as already seen, purchase an annuity, terminable in 25 years, of 64*l.* 0*s.* 3*d.*

And which annuity at 3 per cent. interest will increase in 25 years to 2,333*l.* 17*s.*

On the other hand, the rate of interest being 3 per cent., the sum of 1000*l.* will purchase an annuity, terminable in 25 years, of 57*l.* 8*s.* 7*d.*

And which annuity, at 4 per cent., will increase in 25 years to 2,391*l.* 13*s.* 10*d.*

Further. The rate of interest being 3*l.* 10*s.* per cent., the sum of 1000*l.* will purchase an annuity, terminable in 25 years, of 60*l.* 13*s.* 3*d.*

And which annuity, at 3 per cent., will increase in 25 years to 2,212*l.* 3*s.* 4*d.*

But at 3 per cent. the sum of 1000*l.* will purchase, as already seen, an annuity of 57*l.* 8*s.* 7*d.* and which annuity, at 3½ per cent., will increase in 25 years to 2,236*l.* 17*s.* 2*d.*

From these examples, and under the related circumstances, it is therefore manifest that where it is the intention that the whole of the annuity should increase at compound interest, it is absolutely more advantageous to purchase a temporary annuity when interest is low, and that it subsequently advances, than when interest is high, and that it subsequently declines.

Thus much concerning the properties of terminable annuities, and the manner and extent to which they are affected by variations in the rate of interest.

And now to return to the argument. We may learn, from all that has been said, the consequence of borrowing in stock of a low denomination, and thereby unduly increasing the capital of a public debt, and this will be equally manifest if we abstract from all comparison, and confine our remarks to, the present loan simply and absolutely, and without regard to any other.

And then on the score of capital we first find it urged, that the capital of a debt, be it great or small, is of no consequence, and that the burden consists in the annuity. To which we reply—

That if it should be resolved never to redeem a public debt, either by one large wholesale operation, or by the gradual operations of a sinking fund, or by the conversion of permanent debt into terminable annuities, or that there should be no reduction in the rate of interest on government securities, then the capital of the debt is of no consequence; but in either of these cases the question of capital is of the utmost weight and importance.

For in the first case, and supposing the debt to be redeemed by one large wholesale operation, and by means of a tax on property, according to the plan of the late Mr. Ricardo and others, then, as at whatever price a debt is contracted it is only redeemable at par, so should we in the present case have to pay 17,332,692*l.*, and having received only 15,000,000*l.* there would consequently be a loss of 2,332,692*l.*

In the second case, and supposing the debt to be redeemed by the operations of a sinking fund, then by how much higher the price at which the stock shall be redeemed is beyond the price of the contract, by so much will the nation be a loser; and therefore the nature and quality of this case is precisely the same as the last, however it may differ in measure and proportion

In the third case, and when debt is annihilated by means of the conversion of perpetual into terminable annuities, we have the following state of things:—

At the price of the present loan, which is 86*l.* 10*s.* 10*d.* per cent., a capital of 17,332,692*l.* in 3 per cent. stock will, by the government tables, purchase an annuity of 904,188*l.*, terminable in 25 years.

At the price of 90, the same capital will purchase an annuity of 921,521*l.*, terminable in the same period.

At the price of 92, the annuity will be 939,576*l.*

At the price of 94, it will be 948,965*l.*; at the price of 96, it will be 968,464*l.*; at the price of 98, it will be 979,297*l.*; and at the price of 100, the annuity will be 990,130*l.*

And therefore the difference between the price of the contract and the price of 100*l.*, at which the stock is redeemable, entails the burden of an annuity of 85,942*l.* for 25 years; and at every step and stage of the proceeding there is loss to the community; and this loss must always be considerable, because, as we have already observed, it is precisely when the funds are highest that these conversions are most frequent, and of the greatest magnitude.

By the rise, therefore, in the price of 3 per cent. stock, from 86*l.* 10*s.* 10*d.* to 100*l.*, that which at first was a nominal capital becoming a real capital, the burden by the conversion is 85,942*l.* per annum during 25 years; and this burden is absolute: for, according to the original transaction, the burden was a perpetual annuity of 519,981*l.*, with an option, by the existing law, of turning this into a temporary annuity according to certain rules and regulations, at what time soever the fundholder might think proper.

Now the temporary annuity which, at the period of the contract was equivalent to the perpetuity, was 904,188*l.*, terminable in 25 years; but this was merely the equivalency, and not the actual burden, which was in the perpetuity of 519,981*l.* But at what period soever the conversion takes place, the actual burden is no longer in the perpetuity, but in its equivalency in a temporary annuity, and this equivalency having increased from 904,188*l.* to 990,130*l.*, it is clear that the charge is increased in the same proportion; and this because a perpetuity of 519,981*l.* which, when originally created, was equivalent to a temporary annuity of 904,188*l.* for 25 years, increases when actually converted into an annuity for that term of 990,130*l.*

Thus have we shown the disadvantages of borrowing in stock of a low denomination, and these disadvantages are simple and absolute, and inhere in the thing itself. But the great point still remains, which is this:—That though there should be no discharge of a public debt, either by one large wholesale transaction, or by the purchase of the Sinking Fund, or by conversions into terminable annuities, but that it should always remain precisely in the same position, and be neither redeemed nor converted, yet, as regards debt in stock of a low denomination and with a nominal capital, the mere rise in the market-price of the stock, as compared with the price at which it was originally created, is a loss to the nation, as may very easily be shown.

For suppose an individual should borrow 100*l.* at 5 per cent. interest, and make this further stipulation, that, whatever the future state of things, he would always continue to pay the same rate of interest, or, failing this, that he would return 166*l.* 13*s.* 4*d.* in lieu of the 100*l.* which he had received. It is evident, under such circumstances, that if even the rate of interest should fall, and so as to enable him to borrow money at 4, 3½, or even 3¼ per cent., and thereby to substitute a second creditor for the first; yet this would be of no benefit to him, and he never could reduce his annual charge till the rate of interest should decline below 3 per cent., and so as to enable him to borrow 166*l.* 13*s.* 4*d.* wherewith to pay the first creditor at a less annual charge than 5*l.* Suppose the rate of interest should fall to 2½ per cent., he will then be able to borrow 166*l.* 13*s.* 4*d.*, wherewith to redeem his first debt, at an annual charge of 4*l.* 3*s.* 4*d.*, and thereby he will comparatively gain 16*s.* 8*d.* in his annual charge for interest, but his absolute loss, as proceeding from the original contract, will have been and still is enormous: for,

1st. There is the loss which arises from having paid, during a long period of time, an annual rate of interest which far exceeded the natural and market-rate.

2nd. Though, by the reduction of the annual charge from 5*l.* to 4*l.* 3*s.* 4*d.*, the loss is mitigated, yet it still is most considerable, for the rate of interest having fallen to 2½ per cent., he ought, in the natural constitution of things, to owe only 100*l.*, and his annual charge for interest ought to be only 2*l.* 10*s.*; but from the vice of the first concoction, and from having stipulated that in case of redemption a larger capital should be returned than was advanced, his debt is 166*l.* 13*s.* 4*d.*, and his annual charge for interest 4*l.* 3*s.* 4*d.*

And so that after having paid an inordinate rate of interest throughout a long period of time, the decline in the rate of interest brings him but small relief, and owing to the vice of the original contract, he is condemned to pay an extravagant rate of interest for ever.

But then it will be asked whether any sane and solvent individual could be found who would willingly consent to borrow money on such terms? Probably not: but that which will hardly, or in no case, be done by an individual who is sane and solvent, may so very readily be done by a government, (solvent, at least, if not sane,) that in the instance of the public debt of this country we shall find that the real facts of the case go beyond the example adduced in illustration.

It is well known that the great bulk of our debt was contracted during the last war with France, which, with two trifling intermissions, continued from 1793 to 1815, and from the different rates of interest on the different loans respectively, as stated by Mr. Marshall in his "Digest of Parliamentary Returns," it results that the average rate of interest at which money was borrowed in 3 per cent. stock from 1794 to 1815, both inclusive, was 5*l.* 2*s.* 1*d.* per cent.; and consequently a capital of 170*l.* 2*s.* 2*d.* per cent. stock was created for every 100*l.* received in money, and the price of the stock in money was 58*l.* 15*s.* 6*d.* per cent.

Upon this statement we would, however, make two observations.

1st. That a small portion of terminable annuity being occasionally included in the bargains for perpetual annuities, Mr. Marshall considers the whole as perpetual annuities, which is clearly a mistake. It has, however, so little influence on the final result, that, if rectified, it would not affect the average rate of interest more than one penny per cent.

2nd. The discount and accrued dividends on the stock created by the different loans is omitted by Mr. Marshall altogether, which, if taken into the account as it ought to be, would, of course, reduce the price of the stock, and increase the rate of interest at which the money was borrowed.

Under these circumstances, therefore, it is no exaggeration to state that from 1794 to 1815, both inclusive, the money borrowed in 3 per cent. stock was at an average rate of interest of 5*l.* 2*s.* 1*d.* per cent., and that consequently for every 100*l.* received in money a capital in 3 per cent. stock was created of 170*l.* 2*s.* 2*d.*, which gives a price in money of 58*l.* 15*s.* 6*d.* per cent.

Come we now to other particulars. According to the said Mr. Marshall it further appears that previous to the war with France the capital of the debt in 3 per cents. was 187,611,255*l.*; and by the return of the national debt as it stood on the 5th of January, 1837, the amount of 3 per cent. stock is stated to be 509,229,622*l.*

The difference is therefore 321,618,367*l.*; and as, by means of the operations of the sinking fund and the conversions into terminable annuities, the amount of stock redeemed since 1815 has been greater than the amount created, so must the whole of this difference be imputed to the operations from 1794 to 1815; and consequently the matter now stands in this wise:—

On the one hand, here is a debt of 321,618,367*l.* in 3 per cent. stock, contracted at a rate of interest of 5*l.* 2*s.* 1*d.* per cent., and on which debt the charge for interest is 9,648,551*l.*

per annum, and on the other, the present price of this stock is 90 per cent., which gives a rate of interest of 3*l.* 6*s.* 8*d.* per cent.

Now at the price of 58*l.* 15*s.* 6*d.* per cent., a capital of 321,618,367*l.* in 3 per cent. stock is equivalent to a capital of 189,031,195*l.* in money.

But at the price of 90 per cent., the same sum of 189,031,195*l.* in money is equivalent to only 210,034,661*l.* in stock, on which the charge for interest is 6,301,040*l.* per annum.

The difference is therefore a loss of 111,583,706*l.* in the capital of the debt, and of 3,347,511*l.* in the annual charge for interest.

Now that this is the true state of the matter, and that all this enormous loss, both in capital and annual charge for interest, arises from the device of creating a large capital in stock beyond the capital advanced in money, seems to us beyond all contradiction: for this money having been raised at a rate of interest of 5*l.* 2*s.* 1*d.* per cent., suppose it had been borrowed in a 5 per cent. stock at 97*l.* 19*s.* 2*d.* per cent., which corresponds to a rate of interest of 5*l.* 2*s.* 1*d.* per cent., the capital created would have been 192,971,020*l.*, and the annual charge for interest 9,648,551*l.*

Now it is quite clear that upon certain terms this stock might be reduced to 3 per cent., and if this were done at the market price of 90 per cent., the following would be the state of things:—

The 192,971,020*l.* of 5 per cent. stock would be converted into 214,412,244*l.* of 3 per cent. stock, on which the annual charge for interest would be 6,432,367*l.* The gain therefore would be 107,206,123*l.* in the capital of the debt, and 3,216,184*l.* in the annual charge for interest.

And therefore if there should be no immediate prospect of a reduction to 3 per cent. at par, or at a higher price than 90 per cent., there would still be this enormous difference between an original borrowing in stock of a high, as compared with stock of a low denomination.

But if there should be a reduction to 3 per cent. at par, the gain in the case of the 5 per cent. stock, would be 128,647,347*l.* in the capital of the debt, and 3,859,420*l.* in the annual charge for interest.

And should there be no reduction to 3 per cent. upon any terms whatever, but simply a reduction to 3½ per cent., then the gain in the case of the 5 per cent. stock would be 128,647,347*l.* in the capital of the debt, and 2,894,565*l.* in the annual charge for interest.

This is, therefore, how matters would have stood, supposing that during the late war no 3 per cent. stock had been created, but that the money had been borrowed in a 5 per cent. stock, at the same rate of interest. And if we then consider that the rate of interest at which money was borrowed in 5 per cents. during the war, did not very considerably exceed the rate paid for 3 per cents., and that the 5 per cents. are now actually reduced to 3½ per cents., while the 3 per cents. still continue unredeemed and unreduced;—we shall find that what is set forth by way of illustration is a tolerably correct representation of the real fact. This matter of the 5 per cents., and the actual gain by funding in this stock, as compared with funding in 3 per cents., shall, however, be discussed more fully in another part of the work.

The ill effects of having created so large a debt in 3 per cent. stock being therefore divers ways very apparent, comes the question, Where is the remedy? There is none; and this, simply, because the evil being in the first concoction, and rooted in the very principle of the transaction, cannot be cured by any subsequent procedure, and of this we may soon and easily be convinced: for if we would discharge the debt by a transaction in the gross, this is to make matters worse, for, as this can only be done at par, this is to pay 100 per cent. for stock, when the price is only 90 per cent. in the market. If we redeem it by the operations of the sinking fund, this is to re-purchase stock at 90 which was originally sold at less than 59, and to lose the difference. If we redeem it by means of conversions into terminable annuities, this is to lose the difference between the quantum of annuity to which the stock was equivalent at the price of the original contract, and the price of the actual conversion.

And therefore there is no remedy, and the thing admits no alleviation but by a reduction of interest, and then, supposing the reduction to be to 2½ per cent., the following will be the state of things:—

The annual charge on the capital of 321,618,367*l.* will be reduced from 9,648,551*l.* to 8,040,458*l.* But the sum received in consideration of this capital, when the debt was originally created, was 189,031,195*l.*, and to pay 8,040,458*l.* in annual interest for the use of 189,031,195*l.* is to pay a rate of interest of 4*l.* 5*s.* 1*d.* per cent., and this, though the rate of interest is really reduced from 5*l.* 2*s.* 1*d.* to 2*l.* 10*s.* per cent.; and so that upon a real reduction of 2*l.* 12*s.* 1*d.* per cent. in the rate of interest, the benefit to the nation is only 17*s.* per cent. Whereas, had the money been borrowed at par, and there had been no creation of nominal capital, the reduction would have been full and complete; and the charge consequent on the reduction to 2½ per cent., instead of being 8,040,458*l.*, would have been only 4,725,780*l.* per annum. Such, then, are the consequences of creating large nominal capitals by borrowing in stock of a low denomination.

But then it will be said, that as the fundholder had no power to rescind his bargain in case of loss by a decline in price, so is he entitled to the profit which results from the rise of price. Now this is a very excellent argument in reason, but, as regards the fact, very bad, and altogether inapplicable. The great bulk of the English debt has been contracted since 1793, during the two great wars with the French republic and the French empire, and in all the loans negotiated during and since that memorable period, and up to the present day, there is not one that is not at a profit as compared with the terms of the original contract, and on the greater part the profit is most enormous. But, in the debt contracted in 5 and 4 per cents., the ill effects of this have in good measure been remedied by their reduction to 3½ per cents., and when they shall be reduced to 3 per cents. the benefit will be carried still further.

If it should again be urged that it would have been impossible to borrow such large sums of money except in stock of a low denomination, this is at once met by the fact that very considerable sums of money were funded in 5 per cents. at a rate of interest not much exceeding the 3 per cents.; that at a further trifling advance in the rate of interest the whole might have been so funded; and that, had it not been for the fond delusion of keeping up a large sinking fund by means of loans, not only might all the money required for the purposes of the war have been borrowed in 5 and 4 per cents., but it might have been borrowed at even a lower rate of interest than under the circumstances of an inordinate nominal sinking fund was paid in the 3 per cents.

We say therefore that the argument is false; but whether true or false as applied to the transactions of the late war, it certainly has no place on the present occasion, because it never can be pretended that the money for the payment of the West Indian claimants could not have been raised in a 3½ per cent. stock; and if it even had been raised in a 4 per cent. stock, the advantages would probably have been still greater, as we may perhaps take occasion to show hereafter.*

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* See Note 2 at the end.

Seeing, therefore, that loss results from borrowing in stock of a low denomination, it will then be said that all our objections in this respect, and to the creation of nominal capital, apply equally to Mr. Hume's Resolutions. And this is true: but in a case of this nature everything depends on degree, and measure, and proportion; for suppose—the rate of interest being 4 per cent.—that a loan to a pretty considerable amount should be made in a 4 per cent. stock at the price of 98 per cent. There would in this case be a nominal capital created, inasmuch as for every 100*l.* in money there would be given 102*l.* 0*s.* 10*d.* in stock, and whether the debt should afterwards be redeemed and paid off, or whether the interest on it should be reduced, the effect of this nominal capital would always be felt. Still, however, there would be no reason to quarrel with a loan of this description, and the principle having been adhered to, of borrowing in stock of a high denomination, the small nominal capital that had been created might very justly be considered as a compensation due to the contractor for the loan. And so in the present case Mr. Hume maintains the principle, by borrowing in stock of high denomination, that he may get as near as possible to par, and thereby create the least possible amount of nominal capital. And now how stands the fact? According to Mr. Hume's resolutions, the money raised being 15,000,000*l.*, and the stock created 15,776,327*l.*, there is a nominal capital of 776,327*l.* But according to the terms of the present loan, in consideration of the same sum of 15,000,000*l.* in money, there is created a capital of 17,332,692*l.* in stock. And therefore the nominal capital, which in the present loan is 2,332,692*l.*, being only 776,327*l.* in Mr. Hume's Resolutions, the effect of this difference may be shown in a new and very practical point of view. For,

Let the price of a 3 per cent. stock advance to 96, and still the price of a 3½ per cent. stock will probably not advance beyond 102, and this from the very natural dread and apprehension that in consequence of the rise in the 3 per cents. the 3½ per cents. will be reduced, and consequently nobody would feel inclined to give more (if so much) than 12 years' purchase for an annuity of 10*s.*, the duration of which was so uncertain.

Let the 3 per cents. rise to 98, and there is again likelihood that the price of the 3½ per cents. will not rise beyond 102, if even so high, and this because the reduction is still more probable.

Let the price of the three per cents. rise to 100, and it is probable that the 3½ per cents. would even be under 102, and this by reason that their reduction would then seem to be out of all doubt.

But, not to exaggerate, we will take the price of the 3½ per cents. all through at 102, and then see how the matter stands in each case respectively.

According to the practice of the government in granting annuities for terms of years in exchange of perpetual annuities, all stock of a higher denomination must first be reduced into 3 per cent. stock at the respective average prices of the day preceding the grant of the annuity, and, therefore,

The price of the new 3½ per cents. free of dividend being by the supposition 102, and the capital created by Mr. Hume's Resolutions being 15,776,327*l.*, this at the price of 102 will produce a capital in money of 16,091,854*l.*; which at the price of 96 free of dividend will purchase a capital of 16,762,348*l.* in 3 per cents.; and which, according to the government tables, will purchase an annuity for 25 years of £936,596

But the capital of 17,332,692*l.* created by the present loan, will, at the aforesaid price of 96, purchase an annuity for the same term of 968,464

Difference . . . £ 31,868

At the price of 102 for 3½ per cents., and 98 for 3 per cents., the capital of 15,776,327*l.* in 3½ per cents. will purchase an annuity for 25 years of . . £927,745

But at the price of 98 for 3 per cents., the capital of the present loan will purchase an annuity for the same term of . . . 979,297

Difference . . . £ 51,552

At the price of 102 for 3½ per cents., and 100 for 3 per cents., the capital of 15,776,327*l.* in 3½ per cents. will purchase an annuity for 25 years of . . £919,247

But at the aforesaid price of 100 for 3 per cents., the capital of the present loan will purchase an annuity for the same term of £990,130

Difference . . . £ 70,883

The difference therefore in this last instance is an annuity of 70,883, for 25 years, the value of which is 1,240,840*l.* and the other recited differences between the present loan and a loan in 3½ per cents. according to Mr. Hume's Resolutions, are also very considerable; and then note that these differences obtain, although the capital of the 3½ per cents. is in every instance raised to 2 per cent. above par, while in no single instance is the capital of the 3 per cents. raised higher than par, and in two instances it is below it.

Take this further observation: according to Mr. Hume's Resolutions a capital of 15,776,327*l.* in new 3½ per cents. was at the period of the loan equivalent to a capital of 17,332,692*l.* in 3 per cent. stock; and this latter capital being at the same period equivalent to an annuity of 904,188*l.* for 25 years, it follows that the capital of 15,776,327*l.* in new 3½ per cents. was also equivalent to the same annuity. But at the period of the conversion of the debt in 3½ per cents. into a temporary annuity it is equivalent to an annuity of 919,247*l.* And, therefore, though the capital of this debt has been raised to 2 per cent. above par, and though the price exceeds the contract price (95*l.* 1*s.* 7*d.*) by 6*l.* 18*s.* 5*d.* per cent., yet is the entire perpetuity extinguished by conversion into a temporary annuity at the comparatively trifling difference between the equivalency at the period of the contract and the same equivalency at the period of the conversion of an annuity of 15,059*l.* for 25 years, the value of which, interest being 3 per cent., is 263,615*l.* While, on the other hand, the perpetuity of the present loan is extinguished at a difference in the equivalency of an annuity of 85,942*l.* for the same term of 25 years, which interest, being 3 per cent., is of the value of 1,504,455*l.* And all this, be it observed, has place, although the capital of the present loan is raised only to par, while the capital of the 3½ per cent. is raised to 2 per cent. above par.

If we reduce the capital of the new 3½ per cents. to par, by sinking the price of the stock from 102 to 100, the following will be the comparative state of things at various prices:—

At the price of 100 for 3½ per cents., and 92 for 3 per cents., a capital of 15,776,327*l.* in 3½ per cents., will purchase an annuity for 25 years of	£929,574
But at the aforesaid price of 92 the capital of the present loan will purchase an annuity for the same term of	939,576
Difference	£ 10,002

The difference is therefore an annuity of 10,002*l.* for 25 years, the value of which by the government tables is

169,742*l.* And therefore it is manifest that whenever the price of consols is 92 per cent., if the price of the new 3½ per cents. should not exceed 100 per cent., the gain on a loan on the terms of Mr. Hume's resolutions would be 169,942*l.*

At the price of 100 for 3½ per cents., and 94 for 3 per cents., a capital of 15,776,327*l.* in 3½ per cents. will purchase an annuity for 25 years of £918,887

But at the aforesaid price of 94, the capital of the present loan will purchase an annuity for the same term of 948,965

Difference . . . £ 30,078

The difference is therefore an annuity of 30,078*l.* for 25 years, of the value of 516,408*l.*

At the price of 100 for 3½ per cents., and 96 for 3 per cents., a capital of 15,776,327*l.* in 3½ per cents., will purchase an annuity for 25 years of £918,232

But at the aforesaid price of 96 the capital of the present loan will purchase an annuity for the same term of 968,464

Difference . . . £ 50,232

The difference is therefore an annuity of 50,232*l.*, of the value of 863,046*l.*

At the price of 100 for 3½ per cents., and 98 for 3 per cents., a capital of 15,776,327*l.* in 3½ per cents. will purchase an annuity for 25 years of £909,554

But at the aforesaid price of 98, the capital of the present loan will purchase an annuity for the same term of 979,297

Difference . . . £ 69,743

The difference is therefore an annuity of 69,743*l.*, of the value of 1,209,702*l.*

At the price of 100 for 3½ per cents., and 100 for 3 per cents., a capital of 15,776,327*l.* in 3½ per cents. will purchase an annuity for 25 years of £901,223

But at the aforesaid price of 100 for 3 per cents., the capital of the present loan will purchase an annuity for the same term of 990,130

Difference . . . £ 88,907

The difference is therefore an annuity of 88,907*l.*, of the value of 1,556,359*l.*

And therefore, setting aside all discussion as to the period when it is probable there will be a reduction of the 3½ per cents., we have always in the axiom of Euclid, that "things equal to one and the same thing are equal to one another," an infallible method of judging of the comparative advantages of the two loans, and this by referring them to the same common standard of a temporary annuity; and by how much at the respective market prices of the same day the stock created by the present loan will exchange at the government annuity office for an annuity for any given term of years beyond the stock of a loan according to Mr. Hume's Resolutions, by just so much is the one more disadvantageous than the other; and this because the holders of the stock of the present loan have the power to impose a greater burden on the country than could have been done by a loan according to Mr. Hume's Resolutions.

From all this it also follows, that even before a reduction of the 3½ per cents. shall have effect, and while that progressive rise in the 3 per cents. is taking place, which is to ensure this reduction, there may be a very considerable loss by the conversion of the 3 per cents. into terminable annuities, and which could not obtain if the loan had been made in 3½ per cents.

These things being therefore very clear and determinate in device and theory, let us now make inquisition into the fact. On the day of this present writing, the 7th of October, 1837, the price of 3 per cent. consols for money is 92⅜, and the price of new 3½ per cents. also for money is 100 per cent. This state of facts will lead to the following results.

The amount of stock created by the loan in new 3 per cents. being according to Mr. Hume's Resolutions 15,776,327*l.* this amount, at the price of 100, will produce an equal sum in money, and which at the price of 92⅜ per cent. will purchase a capital in consols of 17,078,568*l.*

But with the view to a conversion into a temporary annuity, there must from this price of 92⅜ per cent. be deducted the accrued dividend from the 5th of July to the 7th of October, and which when done leaves a price, free of dividend, of 91*l.* 12*s.* 2*d.* per cent.

At this nett price of 91*l.* 12*s.* 2*d.* per cent. every 100*l.* in consols will exchange at the government office for an annuity of 5*l.* 8*s.* 5*d.* for 25 years, and therefore the whole

capital of 17,078,568*l.* will exchange for an annuity for the same term of	£925,801
But the capital of the present loan being 17,332,692*l.*, will purchase an annuity for the same term of	£939,576
Difference . . .	£ 13,775

The difference is therefore an annuity of 13,775*l.* for 25 years, that on this day, the 7th of October, 1837, the present loan is more disadvantageous than a loan in new 3½ per cents., according to Mr. Hume's Resolutions.

And now in the reduction of this difference into capital we must call to mind that the government, having first retained to itself the accrued dividend on the consols by deducting it from the price, and thereby lessening the amount of the annuity, afterwards gives back the same thing by ante-dating the annuity, and thereby increasing its value; because this annuity, though for 25 years, carries this date from the 5th of July; and therefore on the 7th of October, the day of the grant, it was an annuity for 24 years 271 days, with the addition of 94 days accrued dividend, and which amounts to 0.2534. And therefore the difference between the present annuity and an annuity for 25 years simply, and without the circumstance of an accrued dividend, is the difference between the value of 0.2534 in present payment and the same sum to be received at the end of 24 years 271 days, and which difference amounts to 0.1394, as may be seen at once by stating the value of the two annuities.

The rate of interest being 3*l.* 5*s.* 6*d.* per cent., the value of an annuity of 1*l.* for 24 years 271 days by half-yearly payments is	16,8658
Add the 94 days accrued dividend . .	2534
	17.1192
At the same rate of interest the value of an annuity simply and without circumstance for 25 years is	16,9797
Difference	0.1395

The value of an annuity for 1*l.* being therefore 17.1192 years' purchase, this gives for the annuity of 13,775*l.* a value of 235,816*l.*, and this is the difference between the present loan and a loan in new 3½ per cents. according to Mr. Hume's Resolutions.

But if, instead of calculating the value of the annuity correctly, we take this value according to the government tables, the difference is somewhat less: for the price of the stock free of dividend being 91*l.* 12*s.* 2*d.*, or 91.6084 per cent., and the annuity granted in consideration of 100*l.* stock at this price being 5*l.* 8*s.* 5*d.* or 5.4208, if we divide the one by the other, this establishes the value of an annuity of 1*l.* for 25 years simply at 16.8994, to which if we add 0.1395 for increased value arising from the accrued dividend, makes 17.0389 as the value of 1*l.* of this annuity according to the government tables, and the entire annuity being 13,775*l.*, the sum of its value is consequently 234,711*l.*

This is then the value according to the government tables; but these tables being constituted upon the principle that the prices of the stock which have reference to the amount of the annuity take a range which is equivalent to 6*d.* per cent. above, and 6*d.* per cent. below the rate of interest at which the annuity is calculated, must necessarily be erroneous in all cases except where the price of the stock happens to be the mean of the two extremes; and the greater the divergence from the mean, and the nearer the price is to the two extremes, the greater of course will be the error. When the price is below the mean the government loses, and when it is above the government gains. Thus in the present instance the annuity is reckoned at a rate of interest of 3*l.* 5*s.* per cent., and all the different prices of stock from 91*l.* 12*s.* 1*d.* to under 93*l.* 0*s.* 6*d.* per cent. are equally applicable to the same annuity. But the rate of interest being 3*l.* 5*s.* per cent., it is in the very nature and proportion of things impossible that 91*l.* 12*s.* 1*d.* can truly command the same amount of annuity as 93*l.* 0*s.* 6*d.*, and yet this is done by the government tables. If we then further consider that the price of 91*l.* 12*s.* 1*d.* for a 3 per cent. stock answers to a rate of interest of 3*l.* 5*s.* 6*d.*, and that the price of 93*l.* 0*s.* 6*d.* answers to a rate of interest of 3*l.* 4*s.* 6*d.*, while the calculation is made at 3*l.* 5*s.* per cent., we shall at once perceive, not only that there is error in both cases, but that at every other price of stock between 91*l.* 12*s.* 1*d.* and under 93*l.* 0*s.* 6*d.*, except that particular price which corresponds exactly to a rate of interest of 3*l.* 5*s.* per cent., there must be error in the calculation.

We state all this merely, without complaining of it. The calculations in the government tables are sufficiently near for all real practical purposes, and to have constructed them upon a different principle, and so as to square exactly to a greater number of prices of stock, so far from being productive of benefit, would probably, by means of so many small differences, have led to confusion. *Confusum est quicquid usque in pulverem sectum est.*

In the meantime, if we would arrive exactly at the truth in the present instance, we must state things after the following manner.

The price of the stock, free of dividend, is 91*l.* 12*s.* 2*d.* per cent., which corresponds to a rate of interest of 3*l.* 5*s.* 6*d.* per cent., at which rate an annuity for 25 years simply is worth 16·9797.

By the Resolutions of Mr. Hume, the 32 days accrued dividend from the 5th of July to the period of the first instalment, the 6th August, are included in the price of each stock respectively, and as the price on the 7th of October includes 94 days of accrued dividend, so is there a difference in this respect of 62 days.

The amount of the present loan in consols is 17,332,692*l.*, the value of which, at 92⅜ per cent. is . .		£16,011,074
Deduct 62 days accrued dividend . . .		88,323
		£15,922,751
Value received under the contract . .		15,000,000
Loss . .		£ 922,751
The value of the 15,776,327*l.* 3½ per cents. at par, is . .	£15,776,327	
Deduct 62 days accrued dividend	93,790	
	£15,682,537	
Value received according to the Resolutions	15,000,000	
		682,537
Difference . .		£ 240,414

And therefore, on this present day, the 7th of October, 1837, the loss on the present loan is 922,751*l.* On the other hand, the loss by a loan in new 3½ per cents. is 682,537*l.*, and, consequently, the gain by a loan in 3½ per cents. as compared with the present loan, is 240,414*l.*, and which, when converted into a temporary annuity, is equivalent to an annuity of 14,159*l.* for 25 years, from the 7th of October, 1837.

And now, if we would see the clear loss on the 7th of October, 1837, on the present loan, as compared with a loan in new 3½ per cents., after deducting the greater amount of annual charge on the latter, from the 5th July, 1837, we must state it in this way.

The gross amount of Loss on the 7th of October is	£240,414
Deduct the excess of annual charge, 32,190*l.*, and which interest being 3½ per cent., will increase, in 2 years 94 days, by half yearly payments, to	74,945
Remains nett Loss . . .	£165,469

which is equivalent to an annuity of 9,745*l.* for 25 years simply, or to an annuity of 9,665*l.* for 24 years, 271 days, with the addition of 94 days accrued dividend.

Now nothing of what we have here stated may, we believe, be contradicted; for, first, it is most certain that the loss to the grantor of an annuity always resolves itself into the difference between the sum which he has received in consideration of the grant, and the sum which it requires to redeem the annuity. And the difference in the present loan being 922,751*l.*, while in the loan in 3½ per cents. it is only 682,537*l.*, the comparative loss is 240,414*l.*, and which, after deducting the excess in the annual charge, is reduced to 165,469*l.*

In the next place, the loss in temporary annuity is equally clear, and this by reason of the power which the holder of stock possesses to convert his permanent debt into a temporary annuity. And it is quite sufficient that this power exist, and whether it be exercised, or not, precisely on this very day, the 7th of October, will not change the nature of the case. For let it be exercised, and the charge will be incurred and the loss sustained. Let it not be exercised, and the loss may be increased: for the price at which the preceding calculations are made being 91*l.* 12*s.*, and the price at which only the stock is redeemable being 100*l.* per cent., there must still be a rise of 8*l.* 8*s.* per cent. before the market price tallies with the price at which the holder is bound to accept reimbursement. And as every rise in price will bring an addition to the temporary annuity, and that if the price should remain stationary, or if even it should decline, this will not disturb his permanent annuity, so can he suffer no absolute loss by delaying to exercise his power of conversion.

Thus have we entered largely into the subject, and surveyed it in various aspects, and this is the sum: that by raising money in stock of a low denomination, a nation may be injured five several ways; as

1. If it should be resolved to redeem the debt by one large wholesale operation, according to the plan of the late Mr. Ricardo and others. The loss being in this case the difference between the real capital advanced, and the nominal capital for which stock is created, it amounts in the present instance to 2,332,692*l.* and by a comparison with a loan in 3½ per cents. to 1,556,365*l.*

2. By the partial and gradual redemption of debt by the operations of the sinking fund; and then by how much the price paid by the sinking fund shall exceed the price of the original contract, by so much will the nation be injured.

3. By the conversion of the perpetuity into terminable annuities; of which we have treated very fully, and furnished many cases and examples.

4. By the greater difficulty of reducing the interest; and this requires no argument, it being manifest of itself, that the lower the denomination of the stock, the greater will be the resistance to a reduction of interest.

5. By the mere and simple fact of a rise in the price of the stock, and to all the extent of that rise, unless accompanied by a proportionate reduction in the interest. For as every rise in the price of stock is tantamount to a decline in the rate of interest, and as upon every decline in the rate of interest the grantor of an annuity loses; so is it clear, that from every rise in the price of stock beyond the price of the contract, unless accompanied by a proportionate reduction of interest, the State must suffer loss.

And note always, that even when the interest is reduced on stock of a low denomination, precisely the same loss is sustained, as if the stock had been redeemed, and paid off in ready money at par, as may easily be shown. For let 1,000,000*l.* be borrowed at 5 per cent. in a 3 per cent. stock, and the amount of stock created will be 1,666,666*l.* 13*s.* 4*d.* and the annual charge 50,000*l.* In this state of things it is clear, that whatever the reduction in the rate of interest, yet till it fall below 3 per cent., there can be no reduction of interest on the debt. Let interest then fall to 2½ per cent., and the annual charge will be reduced to 41,666*l.* 13*s.* 4*d.* But, if the 1,000,000*l.* of money had been borrowed at par, the annual charge after the reduction would have been only 25,000*l.* The loss therefore, by the creation of 666,666*l.* 13*s.* 4*d.* nominal capital, is a perpetual annuity of 16,666*l.* 13*s.* 4*d.*, the value of which interest being 2½ per cent. is 666,666*l.* 13*s.* 4*d.*, which is precisely the amount of the nominal capital. And therefore, though by reducing the denomination of the stock, from 3 to 2½ per cent. there is the comparative gain of a perpetual annuity of 8,333*l.* 6*s.* 8*d.* yet there is relatively always the same absolute loss as if the 666,666*l.* 13*s.* 4*d.* nominal capital had been paid off in ready money.

And therefore in the case of a nominal capital it holds every way, that whether the debt be redeemed wholly or in part; or whether it remain the same in kind and integrity; or whether it be converted into a temporary annuity; or whether the interest on it be reduced; yet in each and every case the real and virtual loss is the difference between the price at which the debt actually is or may be redeemed and the price of the contract.

But nothing of all this has place when money is borrowed at par, and that no nominal capital has been created. For, first, if there be a rise in the rate of interest there is a gain on the loan, and that because the debt may be discharged for less money than was received under the original contract. Next, if there be a decline in the rate of interest there is no loss, because there ensues the same reduction in the interest on the debt. And lastly, if there be a rise in the rate of interest after a reduction of interest on the debt, there will be the same gain as if this rise had taken place immediately subsequent to the original contract. And indeed the gain will be greater, because any given rise upon a reduced rate of interest is greater in capital value than the same rise upon a higher rate of interest: but its present value with reference to the period of the contract will be less, because it is placed at a greater distance.

Note here, that whenever there is profit to the grantor of an annuity by a rise in the rate of interest, the same profit is made whether the debt be discharged or allowed to remain: for as he who had granted an annuity certain of 40*l.* in consideration of 1,000*l.* when interest was 4 per cent., would if interest should rise to 5 per cent. most certainly be a gainer of 200*l.*, and this because he might re-purchase for 800*l.* the annuity for which he had received 1,000*l.*; so would he virtually make the same profit by allowing the debt to remain, and this in what way soever he employs his money.

For should he employ it in trade, it then stands that he has borrowed 1000*l.* at 4 per cent. for which in the altered rate of interest he would be obliged to pay 5 per cent., and so gains 10*l.* per annum. If he re-lend the money at interest it is the same thing, and obtaining 50*l.* per annum while he pays only 40*l.*, he gains in like manner 10*l.* per annum. And as when interest is 5 per cent. 10*l.* per annum is worth 200*l.*, so is it evident that whether he redeem the original annuity of 40*l.* or allow it to remain, his profit in both cases is virtually the same.

And as in the matter of annuities there cannot be diverse and contradictory principles, and that the same principles must govern the profit or loss on an annuity by whomsoever granted; so is it also certain that in the case of profit on a government annuity in consequence of a general rise in the rate of interest, the same profit will be made by allowing the annuity to continue as by redeeming it at a less price than the original contract. For as, if the debt is redeemed, this must be done by means of a tax, so is it evident that we thereby take a capital from the industrious and productive classes, which in consequence of the increased rate of profit and interest is become more valuable than at the period of the borrowing. As they would therefore lose as much and probably more by the loss of profit on the capital which the tax takes away than they would gain by the discharge of the debt, so is there at all events no more to be gained by the discharge of the debt than by allowing it to continue.

But now we must distinguish: for if the fall in the price of stock be not the effect of a general rise in the rate of interest, but of certain circumstances which cause the securities of the state to be less valuable than those of private individuals, then it will be advantageous to discharge the debt, and this for three reasons:

First, Because the same profit will be made as would have ensued from a general rise in the rate of interest.

Secondly, Because the discharge of the debt will restore confidence, and so that if necessary the same money may afterwards be re-borrowed on more advantageous terms. And,

Lastly, Because the rate of interest being higher on the securities of the government than on those of private individuals, it is advantageous to the productive classes that the debt should be discharged, inasmuch as they always gain by being able to borrow capital at a low rate of interest on private securities, and which capital is employed by the government at a higher rate of interest in the discharge of the public debt.

The rule is therefore simple, and holds universally. If the rate of interest yielded by a public debt is lower than the general market rate of interest, the debt ought to be continued, and this because money being then borrowed by the state for the productive classes at a lower rate of interest than they could borrow it themselves, there necessarily would be injury in taking from them a capital which they can employ at a higher rate of interest than it can be employed by the state in the redemption of the public debt.

But if the rate of interest on the securities of the government be higher than on those of private individuals, then the debt ought to be discharged, seeing that in this case the public gain the difference between the two rates of interest, and so make the same profit as an individual who should borrow money at a low rate of interest in order to re-lend it at an advance.

And now in applying these principles to the actually existing state of things in this country, it may be asked, wherein consists the particular evil and grievance of our national debt? Not in the rate of interest at which the money was borrowed; because this (as far as concerns the debt contracted during the late war with France) was lower than the general rate of interest on private securities. Nor does it consist in the rate of interest actually yielded by the public debt according to the prices of the public funds; because this again is generally lower than the rate of interest on private securities. But it stands in these two circumstances:—

1st. That so large a proportion of the debt was contracted in stock of a low denomination, and whereby it is become impossible to reduce the interest on the debt to a conformity with the interest yielded by the price of the stock.

2nd. That the money for paying the dividends is raised chiefly by taxes on commodities, and whereby much more is paid by the public in tax than is received by the fundholder in dividend.

The only complete and perfect remedy for the first evil is, that there should be that rise in the general market-rate of interest as to sink the price to that of the original contract, and then, whether the debt were discharged at this reduced price or allowed to remain, would, in the main, come all to one. For, given the rate of interest on a public debt (be this rate what it will), it is most sure that the greater or less burden of the debt will always consist in the relation between this given rate of interest, and the general market-rate of interest on private securities. With every rise in the general rate of interest the burden of the debt is diminished, and with every decline it is increased. All which derives from the very nature of annuities, where, as we have already seen, every rise in the rate of interest is to the advantage of the grantor of the annuity, while every fall on the contrary turns to his loss.

Precisely, therefore, in the degree that the funds decline, in consequence of a rise in the market-rate of interest, will the burden of the debt be diminished. But as this decline is not reasonably to be expected, but the contrary, so must we look for help in an opposite direction; and then we say that if there should be a rise in the price of stock—not produced by a decline in the general rate of interest, but by the preference given to public above private securities—and that in consequence of this rise the 3 per cents. should be reduced to 2½ per cent., this would again lighten the burden of the debt: for as there would still be the same profit in trade and the same interest on private securities, and that therefore the income derived by the productive classes from any given amount of capital would remain undiminished, while on the other side they paid less in taxes for the interest on the public debt; so is it clear that they would gain the difference between the two rates of interest. And as according to the well-established maxim, *volenti non fit injuria,* so is it manifest that, while the productive classes gain, the fundholder suffers no loss. It is his own free, unconstrained act, and if he is willing to invest his money at a lower rate of interest in public, than he could obtain in private securities, it is probably because they really are more valuable; and he who in the purchase of a thing does but pay its real value can never be injured.

Thus, then, it stands, if the reduction of the 3 per cents. should be founded upon the preference given to public above private securities: but if this reduction should be founded on a decline in the general rate of interest, there will be no absolute gain to the productive classes; and this, because the interest on the debt being merely reduced to a square, and level with the interest on private securities, there can be no gain of the difference between two several rates of interest. But while there is no absolute gain, it is nevertheless certain that there is a comparative gain, and this, because there is an escape from loss: it being visible that, if the interest on the public debt remained without reduction, while there was a fall in the general rate of interest, the public would suffer an absolute loss to the extent of all the difference between the two rates of interest.

There being therefore two modes by which the public may gain—the one by a fall in the price of stock, and the other by a rise accompanied with a reduction of interest on the public debt—the question is, by which mode is the gain the greatest? This may very easily be determined: for let the rate of interest on private securities be 5 per cent., but let the securities of the state be more valuable than those of individuals, and then the sum of 1,000,000*l.* being wanted for an indispensable purpose, let the government borrow this money in a 3 per cent. stock at 4 per cent. interest. The price of the stock will be 75 per cent. The amount of stock created will be 1,333,333*l.* 6*s.* 8*d.*, and the annual charge for interest will be 40,000*l.*

Now as long as things continue in this state, it is most certain that the productive classes gain 10,000*l.* per annum: for as if the money had not been borrowed it must have been raised by taxation, so by leaving in the hands of the productive classes a capital, which to them is worth 5 per cent., and for which they are charged only 4 per cent., it is evident that they gain the difference between the two rates of interest. Now the market rate of interest being 5 per cent., the value of 10,000*l.* per annum, when turned into capital, is 200,000*l.*, and thence it follows that the expenditure of 1,000,000*l.* by the government if raised by loan entails no greater loss and burden on the productive classes than would the expenditure of 800,000*l.* if raised by taxation. The evil, therefore, is, that the government should want money, to spend unproductively (which is the nature of all government expenditure); but there is no evil in the mode of raising it, for it would have been spent in precisely the same manner if raised by taxation. A very simple and yet, the very best and most perfect scheme of finance, is that which is constantly urged by Mr. Hume—"Economy and Retrenchment," seeing it is much better not to want money at all, than to find out the best possible way of raising it.

This, then, is the state of things when the rate of interest on private securities being 5 per cent., the state has borrowed money for a necessary purpose at 4 per cent. And now let the rate of interest on private securities fall to 4 per cent. and the rate of interest on the securities of the state to 3 per cent., and all profit will vanish: because the money being borrowed in a 3 per cent. stock there can be no reduction of interest, although the interest yielded by the price of the stock is only 3 per cent.

But let the rate of interest on private securities fall to 3 per cent. and the rate of interest on government securities to 2½ per cent., there will then be a reduction of interest on the debt, and the annual charge on 1,333,333*l.* will be reduced from 40,000*l.* to 33,333*l.* 6*s.* 8*d.* But the money originally received by the public being 1,000,000*l.* the annual charge on this sum at the rate of interest on private securities of 3 per cent. is only 30,000*l.*, and the sum paid being

33,333*l*. 6*s*. 8*d*., it is manifest that there is an annual absolute loss to the public of 3,333*l*. 6*s*. 8*d*., and this, notwithstanding the reduction of the interest to 2½ per cent.; and so that while the interest yielded by the price of the securities of the state is only 2½ per cent., the public pay interest on these very securities at the rate of 3*l*. 6*s*. 8*d*. per cent.

On the other hand, if instead of a rise in the price of stock and a consequent reduction of interest on the debt, there should be a fall to the price of the original contract, and so that by a rise in the general rate of interest on private securities to 5 per cent., and on government securities to 4 per cent., every thing should resume its first position, the public would again make a profit of 10,000*l*. per annum.

There being therefore an absolute loss by the rise in the price of stock of 3,333*l*. 6*s*. 8*d*. per annum, and an absolute gain by the fall of 10,000*l*. per annum, the comparative gain by the fall is 13,333*l*. 6*s*. 8*d*. per annum, which, interest being 5 per cent., is equivalent to a capital of 266,666*l*. 13*s*. 4*d*. So true, therefore, it is that the gain is by the rise and not by the fall in the rate of interest; and so true also it is that this holds as well in public as in private annuities, and which may be easily made plain to the lowest capacity. For when an annuity is granted by an individual he receives a certain sum in consideration of this annuity; and in like manner, when money is required by the government for a necessary purpose, there being only two modes of raising it, the one by loan and the other by taxation, when the former mode is adopted, a certain capital being left in the hands of the productive classes, which taxation would have taken away, this is precisely the same thing as the capital which a private individual receives in consideration of the annuity which he has granted, and by means of borrowing each gets hold of a capital which he would not otherwise have possessed. And as the private individual pays interest for the use of the money which he has borrowed; so also in the case of a public loan do the productive classes pay interest for the use of money which they retain by virtue of the loan, and which would have been taken away from them by taxation. And if, for the use of the money so retained by them, they pay less than the general rate of interest on private securities, there can be no doubt that they are gainers by the transaction, that is, they gain by the mode of raising the money.

And, therefore, as, in the case we have supposed, the real gain to the public would be by a fall and not by a rise in the price of stock, although in the last case there is a reduction in the interest on the debt while there is none in the former; so does this hold more strongly in the English national debt; and this, because the nominal capital created by borrowing in stock of a low denomination is proportionably much greater than in the case adduced by way of illustration.

In brief, all burdens being respective and proportional, and consisting in the relation between the weight of the burden itself and the strength of him who is to bear it, so —with seclusion of all regard to other circumstances—does the burden of a public debt consist in the proportion between the interest paid on the debt and the general rate of interest on private securities. If we reduce the interest on the public debt while the general rate of interest remains the same, we lessen the weight of the burden itself. If the general rate of interest is increased while the interest on the debt remains the same, the burden is lightened by increasing the strength of the bearer; and, though it may differ in degree, yet in either case the nature of the profit is the same—it is the gain of the difference between two several rates of interest.

Whatever the interruption from occasional temporary causes, yet as in the main and steady course of things the rate of interest must necessarily be governed by the rate of profit on capital employed productively, and that, the higher the rate of profit, the greater also will be the wealth of all free and industrious communities; so is it deeply to be lamented when the reduction of the interest on a public debt is occasioned by a decline in the general market-rate of interest; while, on the other hand, it is just matter of exultation when this reduction proceeds from that confidence in the conduct and resources of the government that its securities are sought after at a lower rate of interest than may be obtained on private securities. But, however things may be in this respect, and whether there be a decline in the market-rate of interest, or that, the market-rate of interest remaining the same, there is a decline in the rate of interest on government securities, it still holds that upon every befitting and proper occasion the government is bound to endeavour a reduction of the interest on the public debt; for if, when the interest yielded by the securities of the state is less than on private securities, the government does not reduce the interest conformably to the difference, it is clear that it obtains less than the fair value for its securities, and thereby deprives the public of an advantage to which it is entitled.

If, on the other hand, the rise in the price of the funds and the consequent diminution in the rate of interest which they yield should not proceed from the preference given to public above private securities, but from a decline in the general market-rate of interest, the government is again bound to effect a reduction; as otherwise the productive classes, who already suffer from a decline of profit and interest, would suffer still further by paying a higher rate of interest on the securities of the state than could be obtained on private securities.

But in all cases things ought to be left to their natural course, and no reduction ought to be effected prematurely and by artificial means, as was the case with the reduction of the 4 per cents. in 1824, when, though the point was carried, yet this having been solely by means of monstrous and heretofore unheard-of operations on the part of the Bank and the Government, such was the unnatural bias given to things, and such the wild, reckless and gambling spirit that was engendered, that the country, in the last event and ultimate issue of things, lost 30,000,000*l.* of capital. Pretty speculation!

This, as regards the evil of so large a portion of the public debt, being in stock of a low denomination, and its remedy or alleviation. The next evil in our national debt arises from the circumstance that by far the greater part of the money for the payment of the dividends is raised by means of taxes on commodities, and as, from the heavy expenses of collection joined to the profit on the taxes themselves, much more is thereby taken out of the pockets of the people than finds its way to the Exchequer, this destroys the natural balance and equilibrium of things, and must necessarily be a great evil, because more is paid by the public in tax than is received by the fundholder in dividend.

We may easily judge of the effect of taxes on commodities by referring to what took place on the repeal of the salt-tax. This tax was 15*s.* the bushel, and during its existence the price of salt in London, at the regular respectable shops, was 20*s.* the bushel. But, after the repeal of the tax, the price fell to 2*s.* the bushel, and therefore the public gained 3*s.* a bushel in the price of the salt beyond the amount of the tax, and this besides the expenses of collection; and so that, taking these expenses at 10 per cent., the whole gain was 4*s.* 6*d.* per bushel, which is 22½ per cent. on the price of the salt including the tax, and 225 per cent. on the price of the salt without the tax; and when the matter is further analysed it stands this way:—That supposing the natural price of the salt (which is the cost of producing and delivering it to the consumer with a profit to the producer and dealer) to be 2*s.* the bushel, then the expenses of collection amounted to 75 per cent. or ¾ths of this natural price, and the profit on the tax amounted to 50 per cent. beyond the whole of the natural price.

This is therefore a great evil, but not applying to the debt itself, but to the mode of raising the money for the payment of the dividends: it is to be remedied by the adoption of a different system; and if we then reflect that this is probably the only country in Europe in which the taxes on commodities bear so large a proportion to the whole amount of taxation, and that this is a scheme of things which presses with great and undue severity on the middle and lower classes of society, justice plainly requires that we should recur to a different system. Common sense, and a regard to our own interest, also points to the same thing, for what can be more unprofitable and at the same time more ridiculous than to have a system which, in order to bring a certain sum into the Exchequer by means of taxation, incurs not only heavy expenses of collection, but a further and still heavier expense in the shape of profit on the taxes themselves; and which, as inhering in the very nature of things, is unavoidable: for the capital of the dealer who pays the tax being of precisely the same nature as the capital which produces and brings the commodity to market is of course entitled to the same profit, and this profit can only be made by adding it to the price of the commodity. The profit on the tax being therefore incorporated in the price, and every dealer making a profit, it is clear that the greater the number of hands through which the taxed commodity passes before it reaches the consumer, the greater also will be the profit on the tax: and this again falls with undue severity on the lower classes; and buying in small quantities, and, at the farthest possible remove from the first hand, they are more heavily taxed in proportion to their consumption than the other classes of society. Add now to all these considerations the check given to the production and consumption of commodities by that dearness of price which results from their being taxed, and we shall immediately come to the conclusion that, of all and every possible mode of raising money for the public service, taxes on commodities are the most prejudicial.

Having thus treated at large of what we conceive to be the great blot and blemish in our national debt, and having also treated of the injury done to the nation from the mode of raising the money to pay the dividends, let us now return into our way.

In all our reasonings and calculations we have hitherto confined ourselves to the principle contained in Mr. Hume's calculations, which is that the 3½ per cents. should be reduced to 3 per cents. at par. But this is not the only view to be taken of the matter: other calculations may be made; and as, in 1822, the 5 per cents. were not reduced to 4 per cents. at par, but that a *bonus* of 5 per cent. was given to the fundholder,—so let us now compare the result of a loan in 3½ per cents. with the present loan, upon the supposition that the reduction of the 3½ per cents. shall not take place at par, but at lower prices.

The guarantee of the new 3½ per cents. expires in 1840, when they are, of course, redeemable. Now, as it is clear that if, in 1840, Consols should be at par, the new 3½ per cents. might be reduced at par, so is it equally clear that, whatever the price of Consols, the new 3½ per cents. may be reduced into consols at the same price.

Let then the price of Consols in 1840 be 93, and let the reduction of the 3½ per cents. take place at this price, and we shall have the following comparative state of things.

The capital of the present loan is 17,332,692*l.*, and the annual charge for interest is 519,981*l.*

The capital of the loan in 3½ per cents. is 15,776,327*l.*, and the annual charge for interest is 552,171*l.*

And therefore the excess in the annual charge on the latter above the former is 32,190*l.*, and which interest being 3½ per cent. will increase in 5 years to 172,611*l.*, and constituting it 3*l.* 4*s.* 6 $\frac{19}{100}$*d.* per cent. (which is the rate that corresponds to 93 per cent.), an annuity of 5,568*l.*

When the 15,776,327*l.* of 3½ per cents. are reduced to 3 per cents. at the price of 93, the capital will be 16,963,792*l.*,

and the annual charge for interest	£508,914
And the annual charge arising from the excess of interest during 5 years . . .	5,568
Total annual charge . . .	£514,481
Annual charge on the present loan	519,981
Difference . . .	£5,499

The difference is therefore a perpetual annuity of 5,499*l.*, that the charge on a loan, according to Mr. Hume's Resolutions, is less than the charge on the present loan; the value of which annuity at 3*l.* 4*s.* 6$\frac{19}{100}$*d.* per cent. (31 years' purchase,) is 170,469*l.* in money and 189,296*l.* in 3 per cent. stock.

And now the wisdom of Mr. Hume's Resolutions becomes manifest: for he has had the chance, during 5 years of such a rise in the price of the funds as should enable him at the end of that term to reduce his 3½ per cents. at par; and yet, so far is this chance from having been obtained by the cost and sacrifice of money, that he is still a gainer of 170,469*l.* in money and 189,296*l.* in stock.

Let us now see the effect of a reduction at other prices.

If, at the end of 5 years, the price of the 3 per cents. should be 94, and the reduction be effected at that price, the gain will be a perpetual annuity of 10,972*l.*, the value of which, at 3*l.* 3*s.* $9\frac{96}{100}$*d.* per cent., or $31\frac{1}{3}$ years' purchase (the rate that corrresponds to 94 per cent.) is 343,789*l.*

If the reduction should be effected at 95 per cent. the gain will be a perpetual annuity of 16,630*l.*, the value of which at $31\frac{2}{3}$ years' purchase is 517,117*l.*

If the reduction should be effected at 96 per cent., the gain will be a perpetual annuity of 21,577*l.*, the value of which at 32 years' purchase is 690,464*l.*

If the reduction should be effected at 97 per cent., the gain will be a perpetual annuity of 26,715*l.*, the value of which, at $32\frac{1}{3}$ years' purchase, is 863,785*l.*

If the reduction should be effected at 98 per cent. the gain will be a perpetual annuity of 31,748*l.*, the value of which, at $32\frac{2}{3}$ years' purchase, is 1,037,101*l.*

If the reduction should be effected at 99 per cent. the gain will be a perpetual annuity of 36,679*l.*, the value of which, at 33 years' purchase, is 1,210,407*l.*

And if the reduction should be effected at par, the gain, as before stated, will be a perpetual annuity of 41,513*l.*, the value of which, at $33\frac{1}{3}$ years' purchase, is 1,383,767*l.*

All these calculations may be easily verified.

PART III.

Comparative Calculations at 97½ *and* 98 *per cent.*

Having ended all our calculations that have a direct and immediate reference to Mr. Hume's resolutions, we come now to a point which it may perhaps be useful to consider.

We proved at the outset that at the price of 97 per cent. a loan might have been made in new 3½ per cents. without any other guarantee than that which the stock already possesses, of being irredeemable till 1840. We also showed that with a guarantee for 10 years against reduction Mr. Hume would have been entitled to a price of at least 97½, and with a guarantee for 15 years, to a price of at least 98 per cent.

And now that nothing may be left unsaid which tends in the least degree to shed light on a choice and weighty principle in finance, we will compare the results of a loan at these prices and with such guarantees with the present loan. And first at the price of 97½ per cent.

Gross price of the loan	£97	10	0
Discount on 87*l.* 10, from the 6th of August 1835 to the 13th of September 1836, is 403 days at 2 per cent.	1	18	8
Net price .	£95	11	4

At this price of 95*l.* 11*s.* 4*d.* the amount of stock created by 15,000,000*l.* of money will be 15,695,849*l.*, and the rate of interest at which the money is borrowed will be 3*l.* 13*s.* 2$\frac{97}{100}$*d.* per cent. And then matters will stand thus :—

Annual charge on a capital of 15,695,849*l.* at 3*l.* 10*s.* per cent.	£549,355
Annual charge by the present loan . .	519,981
Difference . .	£29,374

Which difference of 29,374*l.* per annum will increase in 10 years at 3½ per cent., compound interest, to a capital of 344,598*l.*, and constituting, at 3 per cent., a permanent annuity of 10,338*l.*

When these 3½ per cents. are reduced to 3 per cents. the annual charge on the capital of 15,695,849*l.* will be	£470,875
Add the perpetual annuity arising from the loss of 344,598*l.*, being the accumulation of the excess	
Carried forward	£470,875

Brought forward	£470,875
of interest during 10 years	10,338
	£481,213
Annual charge by the present loan .	519,981
Difference .	£ 38,768

And therefore supposing the 3½ per cents. to be reduced to 3 per cents. at the end of 10 years, the real loss by the present loan as compared with a loan in new 3½ per cents. at 97½ is an increase in the annual charge for interest of 38,768*l.*, which is equivalent to a capital of 1,292,267*l.*, the present value of which is 916,113*l.*

If the reduction however should not be accomplished at the end of 10 years, but at the end of 15 years, the loss by the present loan as compared with a loan in 3½ per cents. will be an increase in the annual charge of 32,102*l.*, which is equivalent to a capital of 1,070,067*l.*, the present value of which is 638,713*l.*

If the reduction should take place at the end of 20 years, the loss will be an increase in the annual charge of 24,185*l.*, which is equivalent to a capital of 806,167*l.*, the present value of which is 405,152*l.*

If the reduction should take place at the end of 25 years, the loss will be an increase in the annual charge of 14,783*l.*, which is equivalent to a capital of 492,767*l*, the present value of which is 208,512*l.*

If the reduction should take place at the end of 30 years, the loss will be an increase in the annual charge of 3,615*l.*, which is equivalent to a capital of 120,500*l.*, the present value of which is 42,932*l.*

After the expiration of between 31 and 32 years, the two things in comparison approach each other and coincide, and so that it becomes a matter of indifference, whether to accept the terms of the present loan or to contract a loan in new 3½ per cents. at 97½, and which 3½ per cents. should be reduced to 3 per cents. at the expiration of between 31 and 32 years.

This is, then, how the matter stands on a comparison between the terms of the present loan and a loan in new 3½ per cents., at the price of 97½ with a guarantee for 10 years against a reduction of interest, and supposing such reduction to take place at the end of the said 10 years, or at any of the subsequent periods we have mentioned.

And it being evident that the longer the term of the guarantee against a reduction of interest, the greater is the value of the stock, we will now state the result of the present loan as compared with a loan in new 3½ per cents. at the price of 98 under a guarantee of 15 years against a reduction of interest, and then when devised into calculation, the state of things will be as follows :—

Gross price of the loan	£98	0	0
Discount on 88*l*. from the 1st of August, 1835, to the 12th of September, 1836, is 403 days at 2 per cent.	1	18	10
Net price .	£96	1	2

At the price of 96*l*. 1*s*. 2*d*. per cent., the amount of stock created by 15,000,000*l*. of money will be 15,614,157*l*., and the rate of interest at which the money is borrowed will be 3*l*. 12*s*. 10$\frac{89}{100}$*d*. per cent., and then matters will stand thus :—

Annual charge on a capital of 15,614,157*l*. at 3*l*. 10*s*. per cent	£546,495
Annual charge by the present loan . .	519,981
Difference .	£26,514

Which difference of 26,514*l*. per annum will increase in 15 years at 3½ per cent., compound interest, to a capital of 511,606*l*., and constituting at 3 per cent. a permanent annuity of 15,438*l*.

When the 3½ per cents. are reduced to 3 per cents., the annual charge on the capital of 15,614,157*l*. will be	£468,425
Add the perpetual annuity arising from the loss of 511,606*l*., being the accumulation of the excess of interest during 15 years . .	15,348
	£493,773
Annual charge by the present loan .	519,981
Difference .	£36,208

And therefore, supposing the 3½ per cents. to be reduced to 3 per cents. at the end of 15 years, the real loss by the present loan, as compared with a loan in new 3½ per cents. at 98, is an increase in the annual charge for interest of 36,208*l*., which is equivalent to a capital of 1,206,933*l*., the present value of which is 720,408*l*.

If the reduction, however, should not be accomplished till the end of 20 years, the loss by the present loan as compared with a loan in the new 3 per cents. will be an increase in the annual charge of 29,062*l*., which is equivalent to a capital of 968,733*l*., the present value of which is 486,852*l*.

If the reduction should take place at the end of 25 years, the loss will be an increase in the annual charge of 20,575*l*., which is equivalent to a capital of 685,833*l*., the present value of which is 290,208*l*.

If the reduction should take place at the end of 30 years, the loss will be an increase in the annual charge of 10,494*l*., which is equivalent to a capital of 349,800*l*., the present value of which is 124,626*l*.

If the reduction should take place at the end of 34 years, the loss will be an increase in the annual charge of 1,084*l*., which is equivalent to a capital of 36,133*l*., the present value of which is 11,219*l*.

After the expiration of 34 years and about five months, the two things in comparison coincide, and so that it becomes a matter of indifference whether to accept the terms of the present loan or a loan in new 3½ per cents. at the price of 98, and which 3½ per cents. should be reduced to 3 per cents. at the expiration of 34 years and 5 months.

This is, then, how the matter stands on a comparison between the terms of the present loan and a loan in new 3½ per cents. at the price of 98, with a guarantee of 15 years against a reduction of interest, and supposing such reduction to take place either at the end of the said 15 years, or at any of the subsequent periods we have mentioned.

Having thus shown at large, and in various points of view, the gain resulting from a loan in 3½ per cents. in the sense of Mr. Hume's resolutions, and this both when the reduction of interest takes place at the period assigned by Mr. Hume, and at other periods; we come now to the last point we proposed to discuss, viz.—that upon the supposition that a reduction of interest, from 3½ to 3 per cent. should never take place, what would be the result of a comparison between the terms of the present loan and a loan in 3½ per cents.? This would, of course, be a loss on the loan in 3½ per cents., and the amount of this loss would be the value in perpetuity of the difference in the annual charge on the two loans, and then the degree and magnitude of the loss will depend upon whether we take the loan at 97, with the guarantee of 5 years, or the loan at 97½ with the guarantee of 10 years, or, in fine, the loan at 98 with the guarantee of 15 years.

If we take the first, then the difference in the annual charge being 32,190*l*., the value of this in perpetuity at 3½ per cent. is 919,714*l*.

If we take the second, the difference in the annual charge being 29,374*l.*, the value of this in perpetuity at 3½ per cent. is 839,257*l.*

And if we take the last, the difference in the annual charge being 26,514*l.*, the value of this in perpetuity, at 3½ per cent., is 757,543*l.*

Now, as the difference in the loss arises from the difference in the original price, and that this again proceeds from the difference in the duration of the guarantee against reduction, so may we take either of these losses indifferently whereon to build an argument. We shall therefore begin with the last, and then return to the two others.

The loss, then, at the price of 98 is 757,543*l.*, and this is the only loss that can by possibility be sustained in case a reduction shall never take place; but at whatever period a reduction be effected, whether in 50 or 100 years, the benefit thence ensuing will always operate in diminution of the loss. Thus, supposing the reduction to take place after 50 years, the loss will be diminished from 757,543*l.* to 314,190*l.* Again, supposing it to take place after 75 years, the loss will be diminished from 757,543*l.* to 569,942*l.* And finally, supposing the reduction to take place after 100 years, the loss will be diminished to 678,158*l.*

The reason of all which is very evident, and as if no reduction should ever take place, the loss would never exceed the value of the perpetuity, which is 757,543*l.*; so does it follow that a reduction at any period of time will always act *pro tanto* in diminution of this loss.

It must now be observed, that all this reasoning is founded on the supposition that the reduction is to take place at par: but as if a reduction cannot be made at par, it may still by possibility be effected at a lower price; so does this alter the case entirely.

Wherefore, if we suppose that at the end of 20 years the reduction of the 3½ per cents. into 3 per cents. shall be effected at the price of 94 per cent. for the latter, we shall have the following state of things :—

The capital in the loan in 3½ per cents., at the price of 98, is 15,614,157*l.*, and the annual charge for interest is 546,495*l.*

After the reduction into 3 per cents. at the price of 94, the capital will be 16,610,805*l.*, and the annual charge for interest 498,324*l.*

The annual charge on the present loan is 519,981*l.*

And therefore, previous to the reduction, the charge on the present loan is less by 26,514*l.* than the charge on the 3 per cents.; but after the reduction, the charge on the

3½ per cents. is less by 21,657*l.* than the charge on the present loan.

And therefore the loss on the 3½ per cents. is the present value of an annuity of 26,514*l.* for 20 years, *minus* the present value of a perpetual annuity of 21,657*l.*, to commence at the end of 20 years.

The first value, interest being 3½ per cent., is	£376,828
The second value, interest being 3½ per cent. during 20 years, and 3*l.* 3*s.* 9$\frac{96}{100}$*d.* per cent. (this being the rate that corresponds to 94 per cent.) for ever after, is	341,034
Difference	£35,794

And therefore, if, at the end of 20 years, the 3½ per cents. should not be reduced at par, but at the price of 94 per cent., the loss, as compared with the present loan, would be only 35,794*l.* in present value.

If, at the end of 20 years, the reduction should take place at 95 per cent., there would be no loss, but a gain in present value of 51,306*l.*

And if, at the end of 20 years, the reduction should take place at 96 per cent., the gain in present value would be 138,427*l.*

Come we now to the loan in 3½ per cents. at 97½ per cent., with a guarantee for 10 years against reduction.

The capital of this loan is 15,695,849*l.*, and the annual charge for interest 549,355*l.*

After the reduction into 3 per cents. at the price of 94, the capital will be 16,697,712*l.*, and the annual charge for interest 500,931*l.*

And the annual charge for interest on the present loan being 519,981*l.*, it follows,—

That, previous to the reduction, the annual charge on the present loan is 29,374*l.* less, but that, after the reduction, it is 19,050*l.* more than on the loan in 3½ per cents.

And therefore, if at the end of 15 years the 3½ per cents. should be reduced to 3 per cents. at the price of 94, the loss or gain on the 3½ per cents. will be the difference between the value of an annuity of 29,374*l.* for 15 years and a permanent annuity of 19,050*l.* to commence at the end of 15 years.

The first value, interest being 3½ per cent., is	£338,312
The second value, interest being 3½ per cent. during 15 years, and 3*l.* 3*s.* 9$\frac{96}{100}$*d.* per cent. for ever after, is	356,284
Difference . .	£17,972

And therefore, if at the end of 15 years the 3½ per cents. should be reduced at 94 per cent., there would be a gain as compared with the present loan of 17,972*l.* in present value.

If at the end of 15 years the reduction should be effected at 95 per cent., the gain in present value will be 121,430*l.*

And if at the end of 15 years the reduction should be effected at 96 per cent., there will be a gain in present value of 224,886*l.*

Turn we now to the loan in 3½ per cents. at 97 per cent., with a guarantee of 5 years against reduction.

The capital of this loan is 15,776,327*l.*, and the annual charge for interest 552,171*l.*

After the reduction into 3 per cents. at the price of 94, the capital will be 16,783,327*l.*, and the annual charge for interest 503,500*l.*

And the annual charge for interest on the present loan being 519,981*l.*, it follows,—

That previous to the reduction the annual charge on the present loan is 32,190*l.* less, but that after the reduction it is 16,481*l.* more than in the loan in 3½ per cents.

And, therefore, if at the end of 10 years, the 3½ per cents. should be reduced to 3 per cents. at the price of 94, the loss or gain on the 3½ per cents., as compared with the present loan, will be the difference between the value of an annuity of 32,190*l.* for 10 years and a permanent annuity of 16,481*l.* to commence at the end of 10 years.

The first value, interest being 3½ per cent., is £267,711

The second value, interest being 3½ per cent. during 10 years, and 3*l.* 3*s.* 9$\frac{96}{100}$*d.* per cent. for ever after, is 366,089

Difference . £98,378

And therefore, if at the end of 10 years the 3½ per cents. should be reduced at 94 per cent., there would be a gain as compared with the present loan of 98,378*l.* in present value.

If at the end of 10 years the reduction should be effected at 95 per cent., the gain in present value would be 221,253*l.*

And if at the end of 10 years the reduction should be effected at 96 per cent., the gain in present value would be 340,054*l.*

This, then, being the state and condition of things, it clearly results, that though it should not be practicable to reduce the 3½ per cents. at par, yet as even when the reduction takes place at considerably lower prices there is not only no loss but even a gain, so is it very difficult to imagine that there ever should be a loss by a loan in 3½ per cents. as compared with the present loan. And this is the great feature in Mr. Hume's plan: he secures the chance of being able to render a most important service to the nation by reducing the 3½ per cents. at par, and if this chance fails, not only no loss ensues, but there is even a gain.

It will have been perceived, that in the preceding calculations for the reduction of the stock created at 97 we take the term of 10 years; for the stock created at 97½, the term of 15 years; and for the stock created at 98, the term of 20 years; the reason of all which is very plain, and derives from the very nature of a guarantee as explained by us at the commencement. For as in the guarantee of 5 years the government is not free to act during that term, however favourable the circumstances; and in like manner of the guarantee of 10 and 15 years the power of the government is suspended during these 10 and 15 years respectively; so is it manifest, that in the case of the guarantee of 5 years the probability that there will be a reduction at the end of 10 years, either at par or any other given price, is equal to the probability that there will be the same reduction at the end of 15 years in the case of the guarantee of 10 years; and also equal to the probability that there will be the same reduction at the end of 20 years, in the case of the guarantee of 15 years; seeing that in each and every case the government has the same clear term of 5 years wherein it is free to act, and that it is impossible by reasoning *a priori* to determine whether a period of 5 years after a lapse of 15 years shall be more or less favourable to a reduction at a given price than a like period of 5 years after the lapse of 5 or 10 years.

The three probabilities are therefore equal, but with this single exception and reservation—that all other things being the same, the regular increasing partiality for government securities turns the scale somewhat in favour of the longer term, and so as to render it more probable that there will be a reduction during the 5 years after the expiration of 15 years than during the same term after the expiration of 10 years; and more probable again in the latter case than during the 5 years after the expiration of 5 years.

It appearing from the calculations that the loan at 98 with a guarantee for 15 years, is less advantageous to the government than the loan at 97½ with a guarantee for 10 years, and that the latter is again less advantageous than the loan at 97 with a guarantee for 5 years; so is it evident that we were within bounds when we stated that loans might have been effected at such prices and with such guarantees. This disadvantage is, however, in some degree compensated by the consideration that from the smaller amount of capital and annual charge on the loan at 98, the loss would be less or the gain greater in case of a considerable delay in the reduction than on the loans at 97½ and 97. And therefore if we suppose three different loans at these prices and guarantees respectively to be effected at the same time, and that they should all be reduced to 3 per cents. at par at the end of 40 years from the date of the contract, the loss on the loan at 98 will be 132,156*l.* On the loan at 97½ the loss will be 213,858*l.* And on the loan at 97 it will be 294,326*l.* In like manner, if the reduction should take place at the end of 25 years from the date of the contract, the gain on the loan at 98 will be 290,208*l.*; on the loan at 97½ it will be 208,512*l.*; and on the loan at 97 it will be 128,029*l.*

There is yet one point of view in which the matter may be considered, viz:—That if there never should be a reduction of interest on the 3½ per cents. either at par, or any other price, but that it should be resolved to redeem and pay off the whole of the public debt by one large wholesale operation; in this case it is visible, that as the whole of the debt must be redeemed at par, the gain or loss on the 3½ per cents. as compared with the present loan would be precisely the same as if the whole debt remaining unredeemed the interest on the 3½ per cents. should be reduced to 3 per cents. at par. If proof should be required of this, it may be furnished in one instant; for let this redemption take place at the end of 30 years, and we shall have the following state of things:—

The capital of the debt created by the present loan is 17,332,692*l.*

The capital of the debt in 3½ per cents. at the price of 98 is	£15,614,157
The excess of annual charge beyond the present loan is 26,514*l.*, and which, at 3½ per cent., compound interest, will increase in 30 years to	1,368,724
	£16,982,881
Capital required to redeem the present loan	17,332,692
Difference	£349,811

The difference, therefore, in favour of the 3½ per cents., compared with the present loan, is a gain of 349,811*l.*, the present value of which is 124,630*l.* And the same gain would be made if the debt remaining unredeemed the 3½ per cents. should at the end of 30 years be reduced to 3 per cents. at par.

On the loan at 97½ the gain would be 120,478*l.*, the present value of which is 42,924*l.*

And on the loan at 97 the loss would be 105,369*l.*, the present value of which is 37,541*l.*

With respect to the loans at 97½ and 98, we would farther observe, that though the interest on them should never be reduced, and though again there should never be a redemption of the public debt by means of one large wholesale operation, yet, from the facility of converting permanent debt into temporary annuities, all the consequences would ensue to which we have already alluded, in treating of the loan at 97, and from the greater amount of temporary annuity that could be purchased by the present loan as compared with a loan in 3½ per cents., the first would always be more disadvantageous than the last. It is unnecessary here to demonstrate this by calculation, having done it already so fully in a former part of the discourse.

This concludes our remarks on Mr. Hume's Resolutions; and if we now turn to facts, it will be found, that our own history and that of other nations bear ample testimony to the clear and correct views which this gentleman has taken of the question, and of the consequences which ever have, and in the very reason of things ever must ensue, from the additions of capital to a public debt by means of borrowing in stock of a low denomination. Thus, on the occasion of the redemption of the public debt of the United States of America, a large proportion of this debt consisted of 3 per cent. stock which had been created at comparatively low prices, but which nevertheless was redeemed at par, and whereby the enormous difference between the price of the creation and that of the redemption fell as a loss on the American community.

We meet with precisely the same thing in the history of British finance; and the matter is so curious and important, and has led to such very serious consequences, that it deserves to be fully and distinctly examined and considered in the present inquiry.

From the particulars of the different loans and fundings from 1794 to 1815, both inclusive, as furnished by Mr. Marshall, in his 'Digest of Parliamentary Returns' part ii., page 211, it may be collected that the money borrowed in the 3 per cents. was at an average rate of interest of 5*l.* 2*s.* 1*d.* per cent.; and so that 170*l.* 2*s.* 2*d.* stock was given for 100*l.* money, and the price of the stock was 58*l.* 15*s.* 6*d.* per cent.

The total amount of 3 per cent. stock created from 1794 to 1815, both inclusive, was 696,217,393*l.*; but of this amount, it appears from the book of 'Fairman on the Funds,' 7th edition, by Bernard Cohen, that in the same period 255,880,748*l.* of 3 per cent. stock was repurchased by the sinking fund, and this at considerable loss to the nation.

This, as regards the 3 per cents. With respect to the 5 per cents., it is to be collected from Mr. Marshall that the fundings in this stock from 1794 to 1815, both inclusive, took place at an average rate of interest of 5*l.* 8*s.* 8*d.* per cent., and so that 108*l.* 13*s.* stock was given for 100*l.* money, and the price of the stock was 92*l.* 0*s.* 9*d.* per cent.; the amount of stock created was 122,840,561*l.*

And, finally, it appears from Mr. Marshall, that during the same period, from 1794 to 1815, both inclusive, the different fundings in the 4 per cent. stock were made at an average rate of interest of 4*l.* 19*s.* per cent., and so that 123*l.* 14*s.* 8*d.* stock was given for 100*l.* money, and the price of the stock was 80*l.* 16*s.* 5*d.* per cent.; the amount of stock created was 49,982,119*l.*

And, therefore, from the particulars furnished by Mr. Marshall, it finally results, that the debt contracted from 1794 to 1815, both inclusive, was at an average rate of interest of 5*l.* 3*s.* 2*d.* per cent., which is equal to the following rates and prices:—

To a price of 58*l.* 3*s.* 2*d.* per cent. for a 3 per cent. stock, and to 171*l.* 18*s.* 11*d.* stock for 100*l.* money.

To a price of 77*l.* 10*s.* 11*d.* for a 4 per cent. stock, and to 128*l.* 19*s.* 2*d.* stock for 100*l.* money.

To a price of 96*l.* 18*s.* 7*d.* for a 5 per cent. stock, and to 103*l.* 3*s.* 4*d.* stock for 100*l.* money.

And therefore the fundings in 3 per cents. were effected at 12*s.* 4*d.* per cent. above the average price, and 1*s.* 1*d.* per cent. below the average rate of interest for a 3 per cent. stock.

The fundings in 4 per cents. were effected at 3*l.* 5*s.* 6*d.* per cent. above the average price, and 4*s.* 2*d.* per cent. below the average rate of interest for a 4 per cent. stock.

And the fundings in 5 per cents. were effected at 4*l.* 17*s.* 10*d.* per cent. below the average price, and 5*s.* 6*d.* per cent. above the average rate of interest for a 5 per cent. stock.

All this we deduce from the particulars of the different loans and fundings as furnished by Mr. Marshall; and in comparing them with those furnished by Fairman, the differences are so trifling, and they would have so little effect on a last result, that they are not worth the considering. This, however, must be observed, that neither Mr. Marshall nor Fairman give the particulars of the discount on the different loans, or the amount of accrued dividend on the stock at the period of its creation. Had this been done, the different loans and fundings would have stood at a higher rate of interest. In the mean time, as this is general, and applies equally to all the loans and fundings, so is it of little consequence to the matter we have now in hand, which is to institute a comparison between the loans and fundings in 3 and 5 per cents.

To this end, we must first consider that the 5 per cents. were reduced to 4 per cents. in 1822 by means of a *bonus*—an addition of 5 per cent. to the capital,—and that in 1830 they were again reduced to 3½ per cents. without any *bonus* whatever, but they were guaranteed till 1840 against all further reduction of interest.

This then being so, and the original rate of interest on the 5 per cents. being 5*l.* 8*s.* 8*d.* per cent., while on the 3 per cents. it was only 5*l.* 2*s.* 1*d.* per cent., it is plain, that previous to the reduction of the 5 per cents., in 1822, the annual charge for interest on any given sum of money borrowed in the 5 per cents. would be greater than on the same sum when borrowed in 3 per cents., and for this excess of charge the 3 per cents. must have credit.

That this may be done with a certain degree of accuracy, we must determine the mean duration of the debt contracted in 5 per cent. stock during the period from 1794 to 1815; and if the money had been raised year by year in equable proportions, and uniformly at the same rate of interest, this would be a very simple and easy operation. But this was not the case, and not only was the debt contracted at various rates of interest, but so very irregularly in point of time, that during the first 11 years the amount of stock created was only 32,968,046*l.*, whereas during the last 8 years of the period it was 89,872,515*l.* In order, therefore, to determine the mean duration, we must compute the whole of the interest paid on the 5 per cent. stock created in the period from 1794 to 1815, both inclusive, and then dividing this sum by the annual charge on the whole debt at the end of the period, the quotient will be the mean duration of the debt.

Now, the whole of the interest paid from 1794 to 1815, both inclusive, was 49,740,979*l.*, and the amount of stock created during the whole term being 122,840,561*l.*, the annual charge at 5 per cent. is 6,142,028*l.*, by which, if we divide 49,740,979*l.*, the quotient will be 8.10 years, and this is the mean duration of the whole debt of 122,840,561*l.* contracted in divers years, in various amounts, and at sundry rates of interest during the period from 1794 to 1815, both inclusive. And if to this term of 8.10 years we add 7 years for the interval between 1815 and 1822, (in which latter year the 5 per cents. were reduced to 4 per cents.) this gives a period of 15.10 years in which the annual charge on the 5 per cents. was greater than on the 3 per cents.

All this laid down, proceed we now to the following

Comparison between 1,000,000*l.* borrowed in 5 per cents., at the rate of 108*l.* 13*s.* stock for 100*l.* money, and the same sum borrowed in 3 per cents., at the rate of 170*l.* 2*s.* 2*d.* stock for 100*l.* money.

At the above rates respectively the amount of 5 per cent. stock will be 1,086,500*l.*, and the annual charge for interest	£54,325	0*s.*
And the amount of 3 per cent cent. stock will be 1,701,083*l.* 6*s.* 8*d.*, and the annual charge for interest	51,032	10
Difference . .	£3,292	10*s.*

And therefore, previous to the reduction of the 5 per cents. in 1822, the difference is 3,292*l.* 10*s.*; so that the annual charge on the 5 per cents. is greater than on the 3 per cents., and which annuity of 3,292*l.* 10*s.* will increase in 15.10 years at 5 per cent. compound interest and half-yearly payments to 72,959*l.*, and so that when the reduction of the 5 per cents. took place in 1822, the matter stood thus:—

Original capital of the 5 per cents. . .	£1,086,500
Addition of 5 per cent. consequent on the reduction	54,325
Farther addition, arising from the increase during 15.10 years of the excess of annual charge above the 3 per cents. . . .	72,959
Total capital . . .	£1,213,784

Annual charge at 4 per cent. . . .	£48,551
Annual charge on the 3 per cents. . .	51,032
Difference . .	£2,481

And, therefore, in 1822, when the 5 per cents. were reduced to 4 per cents., the difference between 1,000,000*l.* originally borrowed in 5 per cents., and the same sum borrowed in 3 per cents., was a perpetual annuity of 2,481*l.* in favour of the 5 per cents., the value of which at 4 per cent., was 62,025*l.* And consequently, when, in 1830, there was a further reduction of the original 5 per cents. to 3½ per cents., the following was the position of things:—

Capital in 1822	£1,213,784	
Deduct the sum to which an annuity of 2,481*l.* will increase in 8 years at 4 per cent., compound interest and half-yearly payments, and which is	23,122	
Remains capital	£1,190,662	
Annual charge at 3½ per cent.	£41,673	0*s.*
Annual charge on the 3 per cents.	51,032	10
Difference	£9,359	10*s.*

The difference, therefore, in 1830, in favour of the 5 per cents. was a perpetual annuity of 9,359*l.* 10*s.*, the value of which, at 3½ per cent., is 267,414.

If after the expiration of the guarantee in 1840 there should be a farther reduction of the original 5 per cents. to 3 per cents at par, the state of things will be as follows:—

Capital of 1830	£1,190,662	
Deduct the sum to which an annuity of 9,359*l.* 10*s.* will increase in 10 years at 3½ per cent., compound interest by half-yearly payments, and which is	110,918	
	£1,079,744	
Annual charge at 3 per cent.	£32,392	0*s.*
Annual charge on the 3 per cents	51,032	10
Difference	£18,640	10*s.*

If therefore, in 1840, the original 5 per cents. should be reduced to 3 per cents., the difference in their favour as compared with the 3 per cents. is a perpetual annuity of 18,640*l.* 10*s.*, the value of which at 3 per cent. is 621,350*l.* And this gain, be it observed, is made notwithstanding the *bonus* of 54,325*l.* to the holder of the 5 per cents. in 1822, and after deduction of 72,959*l.* for excess of charge above the 3 per cents prior to the first reduction.

There being, therefore, a loss in annual charge of 18,640*l.* 10*s.* on every million of money borrowed in 3 per cent. stock as compared with the original 5 per cents., in case the latter should be reduced to 3 per cents. in 1840, at par, and which loss, interest being 3 per cent., is equivalent to a capital of 621,350*l.*; so is it clear that the same loss attaches proportionately to all the 3 per cent. stock created during the period from 1794 to 1815, both inclusive, and which shall still be unredeemed and in existence in 1840; and here the matter may be set down after the following fashion:—

The amount of 3 per cent. stock created during the period from 1794 to 1815, both inclusive, was	£696,217,393.
But there was purchased during the same period by the sinking fund . . .	255,880,748
	£440,336,645

And, therefore, of the 3 per cent. stock that was created during the period from 1794 to 1815, both inclusive, there remained over and unredeemed in 1816 the sum of 440,336,645*l.*, and if this were also the amount in 1840, then, as upon every capital of 1,701,083*l.* 6*s.* 8*d.* in stock there would be a loss of 621,350*l.* in money; so is it clear by proportion, that, upon a capital of 440,336,645*l.* in stock, the loss in money would be 160,840,547*l.* But it is impossible that the stock created from 1794 to 1815, and remaining unredeemed in 1816, should be of this amount in 1840, and this because since 1815 there have been purchases of 3 per cent. stock by the sinking fund beyond the amount raised by loan on the same stock; there have also been conversions of the same stock into temporary annuities, and previous to 1840 there will probably be farther purchases and conversions. Now, on all the stock so purchased and converted, the sum of the difference between the prices actually paid and the price of 100 per cent. must be deducted from the 160,840,547*l.*, and for this reason, that as in the comparison the 3 per cents. have risen from 58*l.* 3*s.* 2*d.* to 100*l.*, and yet, in consequence of their low denomination, without suffering a reduction of interest, so is it clear, that this state of things is precisely equivalent to, and has all the same ill effects as the redemption at par, of a debt contracted at 58*l.* 3*s.* 2*d.* per cent., as may very easily be made appear; for what is a 3 per cent. stock?—a redeemable perpetual annuity of such kind and quality, that the holder of 100*l.* stock is assured of 3*l.* per annum for ever, or failing this, that he is to receive 100*l.* But to refund 100*l.*, when 58*l.* 3*s.* 2*d.* only has been received, is to lose 41*l.* 16*s.* 10*d.*, and this is therefore the loss when the debt is redeemed. With the continuance of the debt the loss is the same; for here 3*l.* is annually paid for the use of 58*l.* 3*s.* 2*d.*, but with the price of stock at 100 this is the annuity which ought to be paid for the use of 100*l.* And therefore to pay 3*l.* per annum for ever for the use of 58*l.* 3*s.* 2*d.*, when, for the same annuity, we ought to have the use of 100*l.*, is to lose 41*l.* 16*s.* 10*d.* for ever. The result, therefore, in both cases, is the same: if this redeemable perpetual annuity be redeemed, the loss is 41*l.* 16*s.* 10*d.*, and if it continue for ever, the loss is the same, and there is consequently a comparative gain on all the debt so contracted, which shall previously have been purchased, or converted into temporary annuities below par. Now, what the gain in this respect may amount to, in the year 1840, it is impossible to determine, but it cannot, we think, exceed 20,000,000*l.*, and certainly not 30,000,000*l.*, and which latter sum deducted from 160,840,547*l.* leaves upwards of 130,000,000*l.* And, therefore, the matter stands this way:—that upon every capital of 1,701,083*l.* 6*s.* 8*d.* in 3 per cent. stock (equivalent to 1,000,000*l.* in money) created in the period from 1794 to 1815, and remaining unredeemed in 1840, there will, as compared with a funding in 5 per cents., be a loss of 621,350*l.* in money, and that the aggregate loss on the stock so unredeemed will amount to at least 130,000,000*l.* in money.

Having thus shown the gain that has actually accrued by borrowing in 5 per cents. up to the year 1830, and the farther gain that will ensue in 1840, in case the 5 per cents. should be reduced to 3 per cents. at par; let us now endeavour to ascertain the profit that will be made in 1840, in case the reduction should not take place at par, but at lower prices.

And first, if the reduction into 3 per cents. should take place at the price of 93 per cent., we shall have the following state of things.

It appears from the last statement, that, in the year 1840, the amount of capital to be reduced is 1,079,744*l.*, and which, at 93 per cent., for a 3 per cent. stock, will produce, in such 3 per cent. stock, a capital of . . . £1,161,015

Annual charge at 3 per cent. . . .	£34,830 0*s.*
Annual charge in 3 per cents. . . .	51,032 10
Difference . . .	£16,202 10*s.*

And therefore, if the reduction should take place at the price of 93 per cent., the difference in favour of the 5 per cents. is the gain of a perpetual annuity of 16,202*l.* 10*s.*, the value of which, at 31 years' purchase (which is the rate that corresponds to the price of 93 for a 3 per cent. stock), is £502,277

If the reduction should take place at 94 per cent., then, as may easily be seen, the gain will be a perpetual annuity of 16,572*l.* 10*s.*, the value of which, at 31⅓ years' purchase, is £519,272

If the reduction should take place at 95 per cent., the gain will be a perpetual annuity of 16,935*l.* 10*s.*, the value of which, at 31⅔ years' purchase, is . . . £536,293

If the reduction should take place at the price of 96 per cent., the gain will be a perpetual annuity of 17,290*l.* 10*s.*, the value of which, at 32 years' purchase, is . £553,296

If the reduction should take place at the price of 97 per cent., the gain will be a perpetual annuity of 17,638*l.* 10*s.*, the value of which, at 32⅓ years' purchase, is £570,311

If the reduction should take place at the price of 98 per cent., the gain will be a perpetual annuity of 17,979*l.* 10*s.*, the value of which, at 32⅔ years' purchase, is 587,330*l.*

And, finally, if the reduction should take place at the price of 99 per cent., the gain will be a perpetual annuity of 18,312*l.* 10*s.*, the value of which, at 33 years' purchase, is 604,312*l.*

The lowest gain therefore being 502,277*l.*, and this, by a reduction at 93 per cent., and there being little doubt that a reduction will be practicable at least at this price, if not at higher prices, so should it seem indubitable that in the year 1840 the gain by borrowing 1,000,000*l.* in 5 per cents., as compared with the same operation in 3 per cents., will be 502,277*l.*

And now, without reference to future reductions of interest, let us see the gain that has actually accrued in this present year, 1837, by the reductions that have already been made.

The capital of the original 5 per cents. in 1830 was 1,190,662*l.*, and the gain on a comparison with the 3 per cents. was a perpetual annuity of 9,359*l.* 10*s.*; and therefore this is the state of things in 1837 —

Capital	£1,190,662
Deduct the sum to which an annuity of 9,359*l.* 10*s.* will increase in 7 years at 3½ per cent., and which is	73,516
Remains capital .	£1,117,146

The annual charge on which at 3½ per cent. is	£39,100	0
Annual charge on the 3 per cents. . . .	51,032	10
Gain in 1837	£11,932	10

And therefore, the gain actually accrued in 1837 upon every million of money borrowed in 5 per cents., as compared with the same amount borrowed in 3 per cents., is a perpetual annuity of 11,932*l.* 10*s.*, the value of which at 3½ per cent. is 340,929*l.*

And indeed if no further reduction should take place, yet as compared with the fundings in 3 per cents., the reductions already made are equivalent to a redemption of the whole debt contracted in 5 per cents. in less than 42 years from the present year 1837, as may easily be shown. For the capital of the debt in 1837 is 1,117,146*l.*, and the gain on a comparison with the 3 per cents. is a perpetual annuity of 11,932*l.* 10*s.*, and which annuity, interest being 3½ per cent., will annihilate a capital of 1,117,146*l.* in 41 years 322 days.

Such then are the effects of borrowing in stock of a higher denomination, that while the debt in 3 per cents. remains entire in capital and without alleviation in point of annual charge, the reductions in the charge on the 5 per cents. already made are equivalent to a redemption of the whole debt in less than 42 years from the present period, and if there should be a farther reduction of the original 5 per cents. to 3 per cents. in 1840, this will be equivalent to a redemption of the entire debt in 5 per cents. in 33 years, 300 days from that period.

Thus have we shown the comparative loss on the 3 per cents., that is, the loss as compared with a funding in 5 per cents., but the absolute loss relies on a different principle, and consists of the following particulars.

1 The difference between the price of 100*l.* and the original price of 58*l.* 3*s.* 2*d.* per cent. on all the stock created during the period from 1794 to 1815 both inclusive, and which shall be unredeemed in 1840. But in case the 3 per cents. should not have obtained the price of 100*l.* in the year 1840, then the loss will be the difference between the market price of the stock and the price of 58*l.* 3*s.* 2*d.* per cent., at which the debt was originally contracted.

2. The difference between the original price of 58*l.* 3*s.* 2*d.* per cent. and the price at which any part of the stock created during the period from 1794 to 1815 shall have been redeemed by the sinking fund in the period from 1794 to 1840.

3. The same difference upon any part of the stock so created, which has been, or shall be during the same period, converted into temporary annuities.

4. The difference between the aggregate amount of interest actually paid, and the aggregate amount of interest yielded by the market price of the stock during the period from 1794 to 1840, on all the stock so created, and remaining unredeemed and unconverted from 1794 to 1840.

The absolute loss stands in these four particulars. We shall attempt no calculation respecting the three last, but confining ourselves to the first, we will suppose that of the stock created from 1794 to 1815 there shall be 370,000,000*l.* unredeemed, and that the price of the stock shall then be 100*l.* The loss will then consist in the difference between the respective prices of 100*l.* and 58*l.* 3*s.* 2*d.* per cent., which is 41*l.* 16*s.* 10*d.* per cent., and on 370,000,000*l.* amounts to the sum of 154,814,167*l.* Now we have already shown that whether the debt continue, or be discharged at par, the loss is the same; for, if continued, the matter stands this way: the sum received for the 370,000,000*l.* is 215,185,833*l.*, and the annuity is 11,100,000*l.*, and therefore by the continuance of the debt, we pay an annuity of 11,100,000*l.* for ever for the use of 215,185,833*l.*; whereas in consideraton of an annuity to this amount we ought to have the use of 370,000,000*l.* and therefore we lose 154,814,167*l.* On the other hand, if the debt be discharged we refund 370,000,000*l.*, having received only 215,185,833*l.*, and thereby we again lose 154,814,167*l.* And therefore, whether the debt continue, or be discharged, there is in both cases the same loss.

This is then the effect of borrowing money in stock of a low denomination; whereas, if the money had been borrowed at par, and whatever the original rate of interest, no such loss would have happened, inasmuch as with the rise in the market-price of the stock there would be a reduction in the annuity.

And now, apart from all comparison with the 3 per cents., let us see the actual gain by the reduction of the 5 per cents., as compared with the terms upon which the debt in this stock was originally contracted.

At the period when the debt in 5 per cents. was contracted the annual charge for interest on a capital of 1,086,500*l* was £54,325

But at the period of the first reduction to 4 per cents. in 1822, the capital by means of a

Carried forward £54,325

Brought forward	£54,325
bonus was increased to 1,140,825*l*., and on which the annual charge for interest at 4 per cent. was	45,633
Gain in 1822 . . .	£ 8,692

The gain in 1822 was therefore a perpetual annuity of 8,692*l*., the value of which, at the then rate of interest of 4 per cent. was 217,300*l*.

At the reduction to 3½ per cent. in 1830 the matter stood this way:—

Capital in 1822	£1,140,825
Deduct the sum to which an annuity of 8,692*l*. will increase in 8 years at 4 per cent.	81,007
	£1,059,818

Annual charge at 3½ per cent	£37,094
Original charge	54,325
Gain in 1830	£17,231

And therefore the gain in 1830 was a perpetual annuity of 17,231*l*., the value of which, at the then rate of interest of 3½ per cent., was 492,314*l*.

And if there should be a further reduction to 3 per cent. in 1840, the following will be the state of things:—

Capital in 1830	£1,059,818
Deduct the sum to which an annuity of 17,231*l*. will increase in 10 years at 3½ per cent.	204,201
	£ 855,617

Annual charge at 3 per cent. . . .	£25,669
Original charge	54,325
Gain in 1840	£28,656

And, therefore, under the related circumstances, the gain, in 1840, will be a perpetual annuity of 28,656*l*. the value of which at 3 per cent. is 955,200*l*.

But the matter does not rest here, and this is not the only gain; and we now come to a new feature in the case. We showed in a former part of the inquiry that the greater part of the money for the payment of the dividends on the public debt is raised by means of taxes on commodities, and that the expense of collecting such taxes being heavy, and there being, moreover, a profit made by the dealer in a taxed commodity on the tax itself, much more is paid by the public in tax than is received by the fundholder in dividend.

The case then so standing, it is of plain and undeniable consequence, that every reduction of interest on the public debt carries along with it a reduction of the expense of collecting, and the profit on the taxes levied for the payment of such interest.

The principle being thus laid down, we now come to the facts; and then upon investigation we believe it will appear that four-fifths of the revenue of the United Kingdom derives from taxes on commodities, and consequently four-fifths of the dividends on the public debt are paid by means of such taxes.

It will next appear that the expense of collecting these taxes, joined to the profit on the taxes themselves, amount to at least 20 per cent., and four-fifths of this rate being 16 per cent., so does it follow that the mode by which the money is raised to pay the interest on the national debt causes 16 per cent. more to be paid by the public than is received by the fundholder.

All this being so, the final and total amount of profit derived from the reduction of interest on the original 5 per cents. will appear from the following statement:—

The gain by the reduction in 1822, according to the former statement, was an annuity of	£8,692
Add 16 per cent.	1,391
Total gain in 1822	£10,083

Which is equivalent, at the then rate of interest of 4 per cent., to a capital of 252,075*l.*

Reduction in 1830.

Capital of 1822	£1,140,825
Deduct the sum to which an annuity of 10,083*l.* will increase in 8 years at 4 per cent.	93,970
Capital in 1830	£1,046,855
Annual charge at 3½ per cent. . . .	£36,640
Original charge	54,325
Gain . .	£17,685
Add 16 per cent. . .	2,830
Total gain in 1830 . .	£20,515

The value of which, at the then rate of interest of 3½ per cent., is 586,143*l.*

And if there should be a reduction to 3 per cent. in 1840, the following will be the state of things:—

Capital of 1830	£1,046,855
Deduct the sum to which an annuity of 20,515*l.* will increase in 10 years at 3½ per cent.	243,119
Remains capital	£ 803,736
Annual charge at 3 per cent.	£24,112
Original charge	54,325
Gain	£30,213
Add 16 per cent.	4,834
Total gain in 1840	£35,047

Which is equivalent at the rate of interest of 3 per cent. to a capital of 1,168,233*l.*

The gain in 1840 being therefore a perpetual annuity of 35,047*l.* upon the sum of 1,000,000*l.*, and in this proportion for the whole sum originally borrowed in the 5 per cents., so is this equivalent to a redemption in about 17½ years from the year 1840, of the whole debt in 5 per cent. stock contracted during the period from 1794 to 1815 both inclusive: it being demonstrable that at 3 per cent. compound interest an annuity of 35,047*l.* will exhaust a capital of 803,736*l.* in 17 years 212 days, and at a higher rate of interest the extinction of the capital would of course take place within a shorter period. And if no part of the debt should be actually extinguished, but that the whole of the different reductions should be applied to the remission of taxes, this, in virtual effect, will make no difference, it being plain to sense that, if after a reduction of interest on a government security the interest still yielded by that security be not higher than the general rate of interest on private securities, there is the same advantage to the community in the remission of taxes to the amount of the reduction as by employing the money in the purchase and redemption of debt. If the rate of interest yielded by the government security be lower than the general rate on private securities, then, more is gained by the remission of taxes than would be gained by the redemption of debt. And therefore it is only when the interest yielded by the debt is greater than the general rate of interest on private securities that more is gained by the discharge of debt than by the remission of taxes; all which is plain at first sight: for let the current rate of interest be 4 per cent., and then let A, being in good credit, borrow 1000*l.* at that rate of B, and the thing is *in equilibrio,* nothing preponderates, and 4 per cent. being the rate at which money may be currently obtained, there is the same advantage in the continuance of the debt as in its discharge.

But having borrowed at 4 per cent., let the current rate of interest rise to 5 per cent., and it is immediately to the advantage of A that the debt should be continued. If, on the other hand, the current rate of interest should fall to 3 per cent., the present and immediate advantage to A lies in the discharge of the debt, unless the interest be reduced to the current rate. Now all this exactly applies, and serves to illustrate the present case; for, as we showed in the introduction, there neither is, nor can be the least difference between a public and a private annuity—both must necessarily be ruled by the same principle, and the public, acting by means of the government as its trustee, must, under the same circumstances, make the same profit, and suffer the same loss as a private borrower.

And therefore it results that if there should be a reduction of the original 5 per cents. to 3 per cents. in 1840, this, with the addition of the former reductions, will be equivalent to the extinction in about 17½ years from that period of all the debt in 5 per cents. contracted during the period from 1794 to 1815, and which shall not have previously been extinguished by the sinking fund or a conversion into temporary annuities.

Let us now see how the matter actually stands in this present year 1837 upon the reductions already made.

The capital of 1830 was 1,046,855*l.*, and the gain was a perpetual annuity of 20,515*l.*, and therefore in 1837 it stands thus:—

Capital of 1830	£1,046,855
Deduct the sum to which an annuity of 20,515*l.* will increase in 7 years at 3½ per cent.	161,139
Capital in 1837 .	£ 885,716
Annual charge at 3½ per cent. . . .	£31,000
Original charge	54,325
	£23,325
Add 16 per cent. . .	3,732
Total gain in 1837 . .	£27,057

which, at 3½ per cent., is equivalent to a capital of 773,157*l.*

The actual gain in 1837 being therefore a perpetual annuity of 27,057*l.*, this is equivalent to a redemption in about 22 years from this present year 1837 of all the debt in 5 per cent. stock, contracted during the period from 1794 to 1815, both inclusive. We say this is the state of things, because it is demonstrable, that interest being 3½ per cent., an annuity of 27,057*l.* will redeem a capital of 885,716*l.* in 22 years and 1 day; and this being all the capital remaining in 1837, and this capital representing by the rule of proportion the capital of all the debt contracted in 5 per cents. during the period from 1794 to 1815 both inclusive, so does it follow, that with the redemption of this capital, the debt is wholly extinguished.

Now all this is important, and yet so true as to leave no room for doubt or contradiction: for suppose that from the date of the first reduction, in 1822, a sinking fund had been established out of the diminution in the annual charge: that such fund had been increased by the further reduction in 1830; that it had been held inviolate up to the present moment, and should remain inviolate till the final extinction of the debt: then it is clear that without any further reduction of interest, the whole debt would be actually extinguished in about 22 years from the present year 1837, and if there should be a further reduction to 3 per cent. in 1840, then it would be extinguished in a somewhat shorter period, as we have shown.

Suppose, again, that part of such sinking fund should be employed in the purchase of debt, and the remainder in the reimbursement of the extra annual charge which should ensue from the voluntary conversion of a part of the debt into terminable annuities, then again the whole debt would be actually discharged in the assigned period, and this partly by the purchases of the sinking fund, and partly by the equivalent conversion into temporary annuities.

Suppose that part only of the money saved by the reduction of interest should be employed as a sinking fund and in defraying the extra charge consequent on a conversion into temporary annuities, and the remainder remitted in taxes, then there will be an actual redemption of part of the debt, and the remainder will be virtually reduced by the remission of taxes.

Suppose, finally, that no part of the money saved should be employed as a sinking fund, but that the whole should be remitted in taxes, and that if a further reduction should take place in 1840, the saving thereby effected should again be remitted in taxes, the following will be the state of things:—

The capital of the debt will be the same in 1840 as in 1822, and will therefore be . . . £1,140,825

On which the annual charge, at 3 per cent., will be	£34,225
Original charge	54,325
Difference	£20,100

And so that there will first be an actual reduction of 20,100*l.* in the annual charge; and this is the extinction of so much debt; for, as if no charge attached to a public debt, the capital of such debt, be it what it would, could never be a burden: so is it plain that the extinction of charge is the extinction of debt. There would consequently be an actual extinction of charge, and, *pro tanto,* of debt, to the extent of 20,100*l.*; and by the repeal of taxes, consequent on the first reduction, and continued throughout every subsequent reduction, the remainder of the annual charge would be equivalently and virtually abolished in 17 years from that period. All which it will be difficult to gainsay, for to us it seems a self-evident proposition that, where the interest yielded by a public debt is not higher than on private securities, there is the same advantage in the remission of taxes as in the redemption of debt by a sinking-fund; and if the interest yielded by the public debt should be lower than on private securities, then the remission of taxes is more profitable than the operations of a sinking-fund.

And now, with reference to the point in debate—how stands the fact? It is most sure that since 1822 a certain amount of the original 5 per cents. has been purchased and cancelled by the operations of the sinking fund. It is again sure that a further amount of the same stock has been converted into temporary annuities; and constituted as is our finance, it is equally sure, that both operations, to a greater or less extent, will be continued. Here, then, to a certain extent, is debt actually redeemed, but during the progress of the redemption taxes cannot be remitted; and so that part of the money arising from the different reductions of interest will have been, and still continues to be employed in the actual redemption of debt, and the remainder remitted in taxes. And thus in final result, and partly by actual, and partly by virtual redemption, the whole debt will be extinguished in the assigned period.

We see therefore the advantage of borrowing in stock of a high denomination, and that, while there has not been the redemption of a single shilling of the debt in 3 per cents., except by means of an outlay of capital derived from taxing the community, the benefit already secured by the mere reduction of interest on the 5 per cents. is such as, without the least outlay of capital, will suffice to annihilate the entire debt in about 22 years from the present year 1837, or in about 17 years from 1840, if there should be a further reduction of interest at that period.

And now comes a curious point to be discussed. From the circumstance that the national debt is the occasion that more is paid by the public in tax than is received by the fundholder in dividend—is not this a great objection? And is it not therefore desirable that the debt should be discharged? To which we reply, that if no other and better mode than the present could be found of raising the money, for the payment of the dividends, this would certainly, *pro tanto*, be an objection against the debt itself; but if there is a method whereby no more or but very little more is paid by the public than is received by the fundholder, then the real objection is not against the debt, but against the mode of raising the money for the payment of the dividends. Now, that there is such a mode, and that this mode is well known to those who propose to discharge the national debt, is most certain; for their *modus operandi*, and whereby they propose to discharge the debt, is a large property tax; but a smaller property tax and other direct taxes might be imposed for the payment of the dividends, and thereby the heavy expenses of collection and all the other consequences which flow from taxes on commodities would be avoided; and consequently, as a tax of the same nature might be imposed for the payment of the dividends as would be imposed if the debt itself were to be discharged, it is not necessary to discharge the debt in order to get rid of the objection. To provide for the dividends by means of direct taxes would also be greatly beneficial to the small fundholders and generally to the middle and lower classes, who now bear the great burden of the national debt, while the large fundholders and the rich, in general, contribute much less than their fair proportion.

And now comes a second question, which is somewhat more difficult of solution: it is this:—whether the continued existence of the debt, even when the dividends are paid by means of taxes on commodities, is not preferable to its discharge?

To satisfy this question, it imports that we consider

1. That the expense of collecting taxes on commodities, joined to the profit on the taxes themselves, is, by our hypothesis, 20 per cent.; and though we believe this to be somewhat underrated, yet we shall let it so remain, because, if even provision were made for the dividends by some other method, this could not be done without some expense, and therefore the real loss stands in the difference.

The loss being therefore 20 per cent., and the taxes on commodities constituting four-fifths of the revenue of the United Kingdom, this, with reference to the present question, makes 16 per cent. that the public pay more in tax than is received by the fundholder in dividend.

2. The next point to determine is, the difference between the rate of interest yielded by the public debt, with the addition of 16 per cent., and the general average rate of interest on private securities throughout the United Kingdom; and according as the one or the other preponderates, will there be loss or gain, by the discharge of the debt. Now the first may be determined with a tolerable degree of accuracy; but to determine the second with an equal degree of precision is impossible. We may however approximate, and, by laying the thing several ways, we shall come sufficiently near the truth for all the purposes of the present argument.

With regard to the first term in the comparison, which is the rate of interest yielded by the public debt, this must be taken from the price of 3 per cent. stock, and the 3½ per cent. stock must be left out of the account, because the greater rate of interest yielded by this stock above the 3 per cents. arises from the greater risk of its being paid off, or the interest reduced. As this greater interest must, therefore, be considered in the light of a premium of insurance, against a risk incurred, so must the 3½ per cents. count as a quantity, at the same rate of interest as the 3 per cents. The temporary annuities must also count, as a quantity, at the same rate of interest.

This laid down, the matter with regard to the interest on the public debt stands thus:—

The amount of 3 per cent. stock on the 5th of January, 1837 (including 11,100,000*l.* due to the Bank), was 509,229,622*l.*, and, therefore, for the sake of round numbers, we shall call the whole amount of 3 per cent. stock, 509,000,000*l.*, and then deduct 11,000,000*l.* for the debt due to the Bank, because this will form a special item in the account.

The average price of 3 per cent. stock for these some years past has been about 91 per cent., but having no wish to exaggerate we shall call it only 90 per cent., which is equivalent to a rate of interest of 3*l*. 6*s*. 8*d*. per cent.; and then, after deducting the 11,000,000*l*. due to the Bank, the money value of the remaining 498,000,000*l*. at 90 per cent., is 448,200,000*l*., and the annual charge for interest at 3*l*. 6*s*. 8*d*. per cent. is 14,940,000*l*.

The debt due to the Bank, being a fixed money debt, and this money being lent at 3 per cent., this counts as 11,000,000*l*. on which the annual charge is 330,000*l*.

The debt in 3½ per cents., amounts to 251,360,839*l*., which, in round numbers, we shall call 251,000,000*l*., and this counts for the same money value of 251,000,000*l*., the annual interest on which at 3*l*. 6*s*. 8*d*. per cent., amounts to 8,366,667*l*.

The temporary annuities amount to 4,213,929*l*., and these we shall value at 14 years' purchase, and whether this be somewhat more or less than their real value, will have very little influence on the final result.

At 14 years' purchase, the value of these annuities in money is 58,995,006*l*., and which, in round numbers, we shall call 59,000,000*l*.; the annual interest on which sum at 3*l*. 6*s*. 8*d*. per cent. is 1,966,667*l*.

We now come to the exchequer bills, the amount of which, in January 1837, was, in round numbers, 28,000,000*l*., the interest on which we first set down at 2¼ per cent., and then take off ½ per cent. for the premium in the market; and this we conceive to be right, because this is the usual rate; and though they have lately paid a higher rate of interest, yet this proceeds solely from the scandalous interference of the Bank with the currency during the period from August 1835 to the beginning of 1837. In a quiet steady course of things, and, supposing the currency to be kept from the pernicious interference of the Bank of England, there is no doubt (such is the great convenience of the investment for temporary purposes) that from twenty to twenty-five millions of exchequer bills would regularly float at a premium, if even the interest were lower than the usual rate of 1½*d*. per centum per diem.

And now, if we recapitulate, and then sum up the different particulars, the matter will stand thus:—

£448,200,000	of 3 per cent. stock at 3*l*. 6*s*. 8*d*. per cent.	£14,940,000
251,000,000	of 3½ per cent. stock at 3*l*. 6*s*. 8*d*. per cent.	8,366,667
699,200,000	Carried forward .	£23,306.667

699,200,000	Brought forward .	£23,306,667
59,000,000	in terminable annuities at 3*l*. 6*s*. 8*d*. per cent. . .	1,966,667
11,000,000	due to the Bank at 3 per cent.	330,000
28,000,000	Exchequer bills at 1¾ per cent.	490,000
£797,200,000		£26,093,334

which is an average rate of interest for the whole debt of 3*l*. 5*s*. 6*d*. per cent.

And now, to see the position of things with the addition of the 16 per cent. lost by the mode of raising the money for the payment of the dividends:

The total amount of interest is . . .	£26,093,334
Add 16 per cent.	4,174,933
	£30,268,267

And this being paid with reference to a capital of 797,200,000*l*., the rate of interest is 3*s*. 15*s*. 11*d*. per cent.

Having thus stated the interest on the public debt as well with as without the 16 per cent., we have now to compute and state the average rate of interest on private securities throughout the United Kingdom; and this is not merely a hard and difficult task, but it is one which it is impossible to execute with precision: but we may approximate, and then, by reflecting that the rate of interest, which is the object of our research, is not simply the rate of discount on prime bills of exchange, nor even the interest which generally prevails in large towns and cities, but, that it is the general average rate of interest on all the money transactions throughout the United Kingdom during a series of years, we feel pretty confident that this cannot be less than from 4 to 4½ per cent. Our first comparison shall therefore be at 4¼ per cent. (the mean), and we shall then make one or two comparisons at lower rates of interest.

The amount of interest yielded by the public debt, with the addition of the 16 per cent., at a rate of 3*l*. 15*s*. 11*d*. per cent. on a capital of 797,200,000*l*. is .	£30,268,267
The amount of interest on the same capital in private securities at 4*l*. 5*s*. per cent. is	33,881,000
Difference . . .	£ 3,612,733

And therefore the difference is 9*s*. 1*d*. per cent.; that the rate of interest is less, and 3,612,733*l.*, that the total amount of interest resulting from that rate is less on the public debt, than on private securities. Or, in other words, at the respective rates of interest, and even including the 16 per cent., the annual gain by the continuance of the debt, as compared with its discharge, is 3,612,733*l.*

If the average rate on private securities throughout the United Kingdom should be 4 per cent., then the account will stand thus:—

This amount of interest yielded by the public debt on a capital of 797,200,000*l.* is	£30,268,267
The amount of interest on the same capital in private securities at 4 per cent. is	31,888,000
	£1,619,733

And therefore, if we suppose the average rate of interest on private securities throughout the United Kingdom to be 4 per cent., the annual gain by the continuance of the debt as compared with its discharge is 1,619,733*l.*

If the average rate of interest on private securities should be 3¾ per cent., the following will be the state of things:—

The amount of interest yielded by the public debt on a capital of 797,200,000*l.* is	£30,268,267
The amount of interest on the same capital in private securities at 3¾ per cent. is	£29,895,000
	£373,267

And, therefore, if we suppose the average rate of interest on private securities throughout the United Kingdom to be 3¾ per cent., the annual loss by the continuance of the debt, as compared with its disharge, is 373,267*l.*

By all this it therefore appears that nothing is to be gained, but that probably much would be lost by the discharge of the public debt, and this notwithstanding that 16 per cent. is paid by the public beyond what is received by the fundholder.

And now, what would be the state of things, supposing the interest on the public debt to be provided for, by means of an income tax, and other direct taxes, of which the expense of collection should not exceed 4 per cent.? We will see.

The total amount of interest yielded by the public debt on a capital of 797,200,000*l.* is . . .	£26,093,334
Add 4 per cent. . . .	1,043,733
	£27,137,067
The amount of interest on the same capital in private securities, at 4*l.* 5*s.* per cent., is	33,881,000
	£6,743,933

And, therefore, under the related circumstances, the annual gain by the continuance of the debt, as compared with its discharge, is 6,743,933*l.*

If we suppose the average rate of interest on private securities to be 4 per cent., then the annual gain by the continuance of the debt, as compared with its discharge, is 4,750,933*l.*

If the average rate of interest on private securities should be 3¾ per cent., the annual gain by the continuance of the debt, as compared with its discharge, is 2,757,933*l.*

And if the average rate of interest on private securities should be 3½ per cent., the annual gain by the continuance of the debt, as compared with its discharge, is 764,933*l.*

And, therefore, supposing the thing to be conducted on a proper principle, and that the dividends for the public creditor should be collected at the least possible expense, the annual gain by the continuance of the debt, as compared with its discharge, would be very considerable.

This is then how the matter stands, when we estimate the interest yielded by the public debt, according to the respective market prices of the different securities, and which is the true criterion whereby to judge of the credit of the state, and of the difference between the interest on public and private securities. But this is not altogether the true method as regards the present question, which relates simply to the discharge of the debt as compared with its continuance; and as if this discharge take place, it must be at par, and not at the market price; so, as regards the permanent annuities, must we take the nominal amount of stock of each denomination, and the interest actually paid according to such denomination. And, with respect to the terminable annuities, as these are not redeemable, and therefore cannot be discharged, we must set down their value according to the market price of the 3 per cents., which will leave them exactly as they stand at present.

All this premised, the true account will run after the following manner:—

Capital.		Interest.
£498,000,000	of 3 per cent. stock . .	£14,940,000
11,000,000	due to the Bank . . .	330,000
251,000,000	of 3½ per cent. stock. .	8,785,000
59,000,000	in terminable annuities at 3*l.* 6*s.* 8*d.* per cent. .	1,966,667
28,000,000	Exchequer bills at 2¼ per cent.	630,000
£847,000,000		£26,651,667
	Add 16 per cent.	4,264,267
	Total charge . .	£30,915,934

And, therefore, the rate of interest, including the 16 per cent., is 3*l.* 13*s.* per cent.; but excluding the 16 per cent., it is 3*l.* 2*s.* 11*d.* per cent.

And now, to compare this with the rate of interest, and the total charge on the same amount of private securities—

The charge on the debt on a capital of 847,000,000*l.*, including the 16 per cent., as we have already seen, is	£30,915,934
The charge on the same amount of capital on private securities, at 4*l.* 5*s.* per cent., is .	35,997,500
	£5,081,566

And, therefore, if we suppose the average rate of interest on private securities, throughout the United Kingdom, to be 4*l.* 5*s.* per cent., the annual gain by the continuance of the debt, as compared with its discharge, is 5,081,566*l.*

If we suppose the average rate of interest on private securities to be 4 per cent., then the annual gain by the continuance of the debt, as compared with its discharge, is 2,964,066*l.*

And if we suppose the average rate of interest on private securities to be 3*l.* 15*s.* per cent., then the annual gain, by the continuance of the debt, as compared with its discharge, is 846,566*l.*

In fine, the rate of interest on the debt, including the 16 per cent., being 3*l.* 13*s.* per cent., it is clear that by how much the interest on private securities exceeds this rate is gain, and that whatever it falls short of this rate is loss.

And now we will state the account upon the supposition that the money for the payment of the dividends should be collected by means of an income tax or any other direct tax or taxes, at an expense not exceeding 4 per cent.

The total amount of interest on the public debt on a capital of 847,000,000*l.* is . . .	£26,651,667
Add 4 per cent. . . .	1,066,067
	£27,717,734
The amount of interest on the same capital in private securities, at 4*l.* 5*s.* per cent., is	35,997,500
	£8,279,766

And, therefore, under the related circumstances, and upon a supposition that the money for the payment of the dividends should be collected at an expense of 4 per cent., the annual gain by the continuance of the debt, as compared with its discharge, is 8,279,766*l.*

If, under the same circumstances, the rate of interest on private securities should be 4 per cent., the annual gain by the continuance of the debt, as compared with its discharge, is 6,162,266*l.*

If the rate of interest on private securities should be 3*l.* 15*s.* per cent., the annual gain by the continuance of the debt, as compared with its discharge, is 4,044,766*l.*

If the rate of interest on private securities should be 3*l.* 10*s.* per cent., the annual gain by the continuance of the debt, as compared with its discharge, is 1,927,266*l.*

But, if the rate of interest on private securities should be 3*l.* 5*s.* per cent., there would be a small annual loss, by the continuance of the debt, of 190,234*l.*

All which may be verified by the method of the first calculations, and, therefore, it is not needful to give the different calculations in detail.

In fine, and universally: by all that the interest on private securities exceeds the interest on the debt, with the addition of the expense of collecting such interest, there will be gain in the continuance of the debt. And, on the other side, there will be gain in the discharge of the debt, by all that the interest on the debt, with the expenses of collection, exceeds the interest on private securities.

And now, by what has been said, and with reference to all public debts, this, we conceive, may be laid down as an axiom:—that whenever the interest yielded by the debt is less than the average rate of interest on private securities, and that the money for the payment of the dividends is collected at the lowest possible expense, there is much more to be gained by the continuance of the debt than by its discharge. On the other hand, when the rate of interest yielded by the public debt is higher than on private securities, there is more to be gained by the discharge of the debt than by its continuance; and this upon two grounds:—First, because the public paying a higher rate of interest to the fundholder than obtains in their money transactions with each other, they lose the difference between the two rates of interest. And next, they lose the expense of collecting the money for the payment of the dividends, and which, however carefully and frugally conducted, will always amount to something.

If ever the public debt of this country should be discharged by an operation in the gross, there would, in one respect, be an extraordinary state of things, and which it will be proper to mention. As matters now stand, and with the debt existing, the government as trustee having borrowed for the whole community, there is one common rate of interest: all pay and are treated alike; and be the private credit of an individual what it will, and as low as may well be conceived, still, in his contributions towards the public debt, he pays no higher rate of interest than the man of unbounded credit. But, with the discharge of the debt, all this is at an end: for as, on the one hand, money must be borrowed by individuals in order to pay the fundholder, so would the latter in consequence of the discharge of the debt require an investment for his capital. And, therefore, instead of one large general borrowing at the same common rate of interest, there would be innumerable private borrowings, and at different rates of interest, and every man would be treated according to his credit and character and the security he had to offer; and so that, while one should borrow at 2½ and 3 per cent., another would be obliged to pay double and treble this rate of interest. The injury to certain individuals, and the confusion that would ensue from such a state of things, may be easily imagined.

This is also to be noted, that the discharge of the public debt would most probably be followed by a great waste and destruction of capital: for as the fundholders would not be able to find a sufficient amount of satisfactory private securities for the investment of so large a capital, there would immediately be concocted all manner of swindling companies, and the country would be filled with foreign stock of every description, and with foreign merchandise, bought at much beyond its true value. The end of all these things we have not to learn.

This concludes our remarks on the advantage or disadvantage of the continuance of the national debt as compared with its discharge. And note always that the evil of a public debt is not in the debt itself, but in its first cause and original; in that which gave rise to the debt—the spending of money; but if this expenditure was for necessary purposes, and that it was absolutely necessary the money should be had, there was no harm in raising it by loan, seeing that if the same money had been raised by taxes it would also have been spent.

The evil then being that money is required for the purposes of the state, this evil is seldom increased, but is frequently lessened, by the method of raising the money by loan; and, indeed, upon all extraordinary occasions, this method should seem to be absolutely necessary. Thus, in the recent case of compensation to the West Indian planters, it would have been absolutely impossible to have raised so large a sum as 20,000,000*l.* without disturbing our whole system of taxation; and the only mode by which it could have been accomplished would have been a general income-tax imposed expressly for the occasion.

Upon the whole matter, therefore, it cannot be too often nor too strenuously repeated, that economy and retrenchment, both in the principle and the detail, and a stern resolution not to spend, while it is the most simple and intelligible, is also the most sure and solid scheme of finance; inasmuch as this goes at once to the root of the evil; and there can be no debate about the mode of raising money, when to all the extent that we practise economy no money whatever is required. Most justly is it observed by Cicero "*Non intelligunt homines quam magnum vectigal sit parcimonia;*" which is thus concisely and emphatically rendered by Mr. Burke—"Economy is itself a great revenue." And so great at all times has been the force and vigour derived to nations from the introduction of this principle into the affairs of the government, that Voltaire specially designates it "*La vigueur de la frugalité.*" It is this principle which has guided the public conduct of Mr. Hume, and which has enabled him to render so many and such great services to the British community.

And now, with reference to the question which is more immediately the object of the present inquiry, it will be seen that we have surveyed it in many and various aspects, and that we have adduced both fact and argument; and in the final result and ultimate issue it should certainly seem that, whether we conclude *à priori* from principles of general reason, and the known powers and properties of things, and their several relations to each other, or whether we conclude by induction of particulars, and from plain fact and experience, it still remains that all loans ought to be contracted at a par price, or as near to a par price as possible, and this even at a sacrifice in the rate of interest, if it cannot otherwise be accomplished.

And this seems also of late years to have been the recognised system of the British government: for in 1826, when there was a funding to the extent of about 8,600,000*l.*, this took place in a 4 per cent. stock, at a rate of interest of 4*l.* 6*s.* 2*d.* per cent., and this notwithstanding the government had only two years before reduced upwards of 70,000,000*l.* of 4 per cents. to 3½ per cents., without any *bonus* whatever, and also notwithstanding the funding might have taken place in a 3 per cent. stock at a lower rate of interest; and finally, although there still existed 150,000,000*l.* of 4 per cent. stock, which the government was bent upon reducing the first opportunity; yet the creation of a further amount of 4 per cent. stock was not thought to be any bar to the operation, nor did it afterwards, in point of fact, prove to be so; nor, when circumstances are favourable to the reduction of a public debt, is the magnitude of the debt of any importance whatever, but, on the contrary, all experience goes to show that a large debt may be reduced with the same and perhaps greater facility than a small one. Thus for example, in the year 1830, a debt of 153,258,218*l.* of 4 per cents. were reduced to 3½ per cents. without any *bonus* whatever, and with only 2,465,068*l.* of dissented stock; while in 1834, on the reduction of only 10,622,911*l.* of 4 per cents. the dissented stock amounted to 4,133,121*l.* In the case of the large debt, therefore, the proportion which the dissented bore to the assented stock was 1.63 per cent., while, in the case of the small debt, this proportion was 63.69 per cent. And this difference of proportion arose from circumstances. When these are favourable, a debt of 200,000,000*l.* may be reduced with perhaps the same absolute, and certainly with much greater comparative, facility, than a debt of 5,000,000*l.*, and among many reasons for this one: that, in the case of the large debt, there is no possibility of combination to defeat the government; while in the case of a smaller debt a combination may by possibility take place. In a word, circumstances were favourable to a reduction in 1830, and the magnitude of the debt was of no importance; but they were unfavourable in 1834, and this occasioned the great amount of dissented stock upon a debt which in itself was very insignificant.

Again, when the funding of 3,000,000*l.* took place in

1829, this was also in a 4 per cent. stock, and this notwithstanding the government intended to reduce, and did, in point of fact, accomplish the reduction of 150,000,000*l.* of 4 per cents. to 3½ per cents. in the following year. The same principle was recognised in 1818, when Mr. Vansittart (Lord Bexley) converted a large amount of 3 per cents. into 3½ per cents.; for all which, see Note 3 at the end.

Thus have we delivered our opinion: but as we are the advocates of no man, and are so far from being wedded to any particular system, that, provided we arrive at the truth, we care not a single farthing whether it centres in one proposition rather than in another, we will now listen calmly and carefully to the reasons alleged by the Chancellor of the Exchequer, in defence of his measures, as we find them set forth in his speech of the 4th of September, 1835.

PART IV.

*Speech of the Chancellor of the Exchequer.**

He says, "that admitting, for the sake of argument, he ought to have borrowed in a 3½ per cent. stock, still he was precluded from entering into such a bargain, because the Act of Parliament prohibited him from entering into any transaction which would have had the effect of creating any new or distinct species of stock."

But Mr. Hume by his Resolutions does not call upon him to create a new species of stock, but merely requires him to borrow in a stock which already exists; and if it be contended, that to give a guarantee of 15 years to a stock of the same denomination as that which already exists, is to create a new species of stock, if the stock which already exists does not also enjoy the same guarantee, then we reply—

1. That the act merely contemplates that the money shall not be borrowed in stock of a different denomination from any of those which already exist, and not that borrowing in stock of an already existing denomination, there should be given no guarantee against redemption, when the sure effect of this guarantee is to borrow the money at a lower rate of interest.

2. That there was no necessity for a guarantee; but at the price stated in Mr. Hume's Resolutions, a loan might

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* See this speech in the Mirror of Parliament on the 4th September, 1835.

have been contracted in new 3½ per cents. without any other guarantee than that which this stock already possesses.

3. That he defeats his argument in other respects, and strengthens Mr. Hume's position, because, to contend that a 15 years' guarantee, albeit without change of denomination, is to create a new species of stock, is to admit the value of a guarantee, and that stock of a certain denomination having a guarantee is worth more than stock of the same denomination without a guarantee; and as it has been proved by many facts, that at the price mentioned by Mr. Hume, the money might have been borrowed without any guarantee whatever, so does it follow, that with a guarantee of 15 years it might have been borrowed at a still higher price; and thereby everything contained in the present discourse is confirmed.

4. That all doubt and difficulty might have been removed by an application to Parliament; and the Chancellor is in error when he alleges that he should thereby have made known his intentions as to the particular stock in which the loan was to be contracted; because a simple application to dispense with that part of the Act which prohibits the creation of a new species of stock is so far from making manifest his intentions as to the particular stock in which the money was to be borrowed, that, on the contrary, it renders these intentions still more latent; for he has thereby the choice of a greater number of different kinds of stock, and which he may further diversify by means of guarantees, and this is most certainly to multiply his means of concealment.

All this therefore proves nothing against Mr. Hume's Resolutions; but when taken in the Chancellor's own sense, and giving the words of the Act that large and wide latitude of signification which they probably will not bear, it merely proves a defect in an Act of the legislature which prevented a sound principle from being carried into practice, and which defect might immediately have been cured by application to Parliament.

The Chancellor further says, "that he was prohibited from contracting a loan at a price which should yield a rate of interest exceeding 5*s*. per cent. beyond the rate of interest which the market price of the stock yielded in which he made his contract."

But this proves nothing in favour of the principle of his loan, which is the matter in debate; nor does it even prove anything in favour of the detail, and that *de facto* the loan was contracted on terms advantageous to the public; but it merely proves that he kept within the limits prescribed by the Act of Parliament. For the rest, the thing was not worth mentioning, still less is it worth calculating, and above all it was a most ridiculous clause to insert in an Act of Parliament, seeing it is impossible in a period of profound peace and internal tranquillity that a British Minister should be obliged to borrow money at 5*s*. per cent. below the rate of interest yielded by the market-price of the stock in which the money is borrowed.

We say, therefore, that the thing is not worth calculating; but if we will bring it to account, and see exactly how the matter stands, we must proceed after the following manner:—

The Act says, that the interest on the money borrowed is not to exceed 5*s*. per cent. beyond the rate yielded by the stock or stocks in which the money is borrowed, according to the market prices of such stocks respectively on the day preceding the day of notice for the loan; and the day here designated, falling on the 24th of July, 1835, we must look for the prices on that day, of the Long Annuity, 3 per cent. Reduced, and three per cent. Consols, and then calculate and compare the rate of interest yielded by such market prices, with the rate of interest on the present loan.

On the 24th of July, 1835, the following were the market prices of the three stocks before mentioned.

Long annuity 16*l*. 18*s*. 9*d*.

Three per cent. Reduced, 91*l*.

Three per cent. Consols 90*l*. 7*s*. 6*d*.

And now let us see what are the several and respective rates of interest which result from these prices.

And first, of the Long Annuity. As this annuity expires on the 5th of January, 1860, it had, on the 24th of July, 1835, a period of 24 years and 165 days to run; and it being payable half yearly, on the 5th of April, and the 10th of October, there was, on the 24th of July, 110 days of accrued dividend, and which was payable on the 10th of October; and there being, from the 5th of April to the 15th of October, 188 days, and the sum due at the latter date being 10*s*., it is evident that the value of the accrued dividend on the Long Annuity on the 24th of July was $\frac{110}{188}$ of 10*s*., *minus* the discount on this value from the 24th of July to the 10th of October; and then the matter upon calculation stands thus:—

1000*l*. Long Annuity at 16*l*. 18*s*. 9*d*.				£16,937	10	0
Deduct for accrued dividend $\frac{110}{188}$ of 500*l*.	£292	11	1			
Less discount on 292*l*. 11*s*. 1*d*. from 24 July to 10 October, 78 days at 3*l*. 6*s*. 8*d*. per cent .	2	1	8			
				290	9	5
Net cost . . .				£16,647	0	7

And therefore the cost of 1000*l*. Long Annuity, clear of all dividend, at the market price, on the 24th of July, of 16*l*. 18*s*. 9*d*. was 16,647*l*. 0*d*. 7*d*., which establishes a price of 16,647 years' purchase, or 16*l*. 12*s*. 11*d*.

This being therefore the price, clear of all dividend, of an annuity of which 24 years and 165 days were yet unexpired, it is demonstrable that at this price, and for this term of continuance, and calculating by half-yearly payments, the rate of interest yielded in perpetuity is 3.32497, or 3*l*. 6*s*. 6*d*. per cent.

Come we now to the 3 per cent. Reduced, of which the market price, on the 24th of July, was 91*l*., and the dividends on this stock being payable on the 5th of April and the 10th of October, the value of the accrued dividend, on the 24th of July was $\frac{110}{188}$ of 1*l*. 10*s*. on every 100*l*. stock, *minus* the discount on this value, from the 24th of July to the 10th of October, and therefore it is thus:—

100,000*l*. Reduced 91*l*. . . .				£91,000	0	0
Deduct for accrued dividend $\frac{110}{188}$ of 1,500*l*. . . .	£877,	13	2			
Less discount on 877*l*. 13*s*. 2*d*. from 24th July to 10th October, 78 days at 3*l*. 6*s*. 8*d*. per cent.	6	5	0			
				871	8	2
Net cost . . .				£90,128	11	10

And therefore the price of the three per cent. Reduced, on the 24th of July, 1835, clear of all dividend was 90*l*. 2*s*. 6$\frac{86}{100}$*d*. per cent., and the rate of interest yielded by this price was 3*l*. 6*s*. 6$\frac{86}{100}$*d*. per cent.

The last article is the 3 per cent. Consols, of which the market price, on the 24th of July, 1835, was 90*l*. 7*s*. 6*d*., and, the dividend on this stock being payable on the 5th of July and the 5th of January, the value of the accrued dividend, on the 24th of July, was $\frac{19}{184}$ of 1*l.* 10*s.* on every 100*l.* stock, *minus* the discount on this value from the 24th of July to the 5th of January, and then the true position of things will be as follows:—

100,000*l.* Consols, 90*l.* 7*s.* 6*d.*		£90,375 0 0
Deduct for accrued dividend $\frac{19}{184}$ of 1,500*l.* . . .	£154 17 10	
Less discount on 154*l.* 17*s.* 10*d.* from 24th July to 5th January, 165 days at 3*l.* 6*s.* 8*d.* per cent.	2 6 8	
		152 11 2
		£90,222 8 10

And, therefore, the price of the 3 per cent. Consols, on the 24th of July, 1835, clear of all dividend, was 90*l.* 4*s.* 5$\frac{4}{10}$*d.* per cent., and the rate of interest yielded by this price was 3*l.* 6*s.* 6 ^{03} *d.* per cent.

All this being laid down, we are now in a condition to state and compute the exact rate of interest resulting from these prices, as applicable to the present loan, which consisted of the following articles:—

101,875*l.* Long Annuity.
3,750,000*l.* 3 per cent. Reduced.
11,250,000*l.* 3 per cent. Consols.

At the price of 16,647*l.* an amount of 101,875*l.* Long Annuity, will produce in money 1,695,913*l.*, and on which the annual charge in perpetuity, at 3.32497 per cent., will be	£ 56,388
The value of the 3,750,000*l.* 3 per cent. Reduced, at 90*l.* 2*s.* 6$\frac{88}{100}$*d.* per cent. will be 3,379,822*l.* and the annual charge for interest	112,500
The value of the 11,250,000*l.* 3 per cent. Consols, at 90*l.* 4*s.* 5$\frac{4}{10}$*d.* per cent. will be 10,150,031*l.*, and the annual charge for interest	337,500
Total annual charge . .	£506,388

And the sum in money, which is the equivalent consideration for this annual charge, being 15,225,766*l.*, it follows that the rate of interest yielded by the market price of the 24th of July, 1835, for the same amount and description of stock that was created by the present loan, is 3*l.* 6*s.* 6 $\frac{21}{100}$*d.* per cent.; at which rate, a sum of 15.000.000*l.* in money is equivalent to a capital of 16,629,375*l.* in a 3 per cent. stock, on which the annual charge for interest is 498,880*l.*, and the price of the stock is 90*l.* 4*s.* 0$\frac{44}{100}$*d.* per cent.

On the other hand, the stock of the present loan is sold for a price of 86*l.* 4*s.* 10$\frac{18}{100}$*d.* per cent., clear of all dividend, on the 6th of August, 1835 (being the date of the first payment of 10 per cent.), and the rate of interest is 3*l.* 9*s.* 6$\frac{86}{100}$*d.* per cent.; at which rate a sum of 15,000,000*l.* in money is equivalent to a capital of 17,392,829*l.*, and on which the annual charge for interest is 521,785*l.**

And, therefore, by comparing the terms of the present loan with a loan concluded according to the market price of the 24th of July, we have the following results:—

1. That the rate of interest of the present loan exceeds the rate of interest yielded by the market price of the 24th of July, in 3*s.* 0$\frac{65}{100}$*d.* per cent.

2. That the price of the stock of the present loan is 3*l.* 19*s.* 2$\frac{31}{100}$*d.* per cent. less than the market price of the 24th of July.

3. That the amount of 3 per cent. stock, created by means of 15,000,000*l.* of money under the present loan, exceeds by 763,454*l.* the amount that would have been created by the same sum, according to the market price of the 24th of July, and on which capital of 763,454*l.* the annual charge for interest is 22,904*l.*

This, as regards the simple comparison between the terms of the present loan and the market price of the 24th of July. But as, by the act of parliament, the government was authorised to negotiate a loan at 5*s.* per cent. beyond the rate of interest yielded by the market price of the 24th of July, so does this circumstance furnish matter for a new comparison; and if we then consider that the rate of interest yielded by the market price of the 24th of July was 3*l.* 6*s.* 6$\frac{21}{100}$*d.* per cent., and that consequently the government was authorised to pay 3*l.* 11*s.* 6$\frac{21}{100}$*d.* per cent., we shall have the following results:—

1. That the rate of interest on the present loan is 1*s.* 11$\frac{85}{100}$*d.* less than the limit prescribed by the act of parliament.

2. That the price of the stock is 2*l.* 6*s.* 11$\frac{19}{100}$*d.* per cent. less than the limit prescribed by the act of parliament.

3. That the difference between the rate actually paid and the rate allowed to be paid by the act of parliament amounts on a sum of 15,000,000*l.* of money to a capital of 486,488*l.*

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* See note 1 at the end.

in a 3 per cent. stock, and to a difference of 14,595*l.* in the annual charge for interest.

This we believe to be the exact state of a matter which is hardly worth the pains we have bestowed upon it; and which, but for the speech of the Chancellor of the Exchequer, we should have left entirely without notice.

The Chancellor then goes on to say that the money of the present loan is borrowed at a rate of interest of 3*l.* 7*s.* 6*d.* per cent. But in this he most certainly is mistaken; for we have proved that the money is borrowed at 3*l.* 9*s.* 3$\frac{27}{100}$*d.* per cent., with dividend from the 5th of July, 1835; and we have also proved that, including the accrued dividend to the 6th of August (the date of the first payment of 10 per cent.) the money is actually borrowed at 3*l.* 9*s.* 6$\frac{86}{100}$*d.* per cent. The difference between the real fact of the case and the statement of the Chancellor is therefore most enormous; and that the Chancellor is mistaken, and that the money is not borrowed at 3*l.* 7*s.* 6*d.* per cent. may be farther demonstrated several ways; for,

First, If the money is borrowed at 3*l.* 7*s.* 6*d.* per cent., then the real value of the long annuity is 16*l.* 17*s.* 4¼*d.*, and the following would be the terms of the loan:—

£75 consols.						
25 reduced.						
£100 of 3 per cent. stock for				£100	0	0 money.
Deduct						
13*s.* 7*d.* long annuity at £16 17 4¼ .	£11	9	1¼			
Accrued dividend on the reduced . .		4	10½			
The same on the consols		3	10¼			
Discount for prompt payment . . .	1	19	9			
				13	17	7
Remains . .				£86	2	5

And, therefore, this leaves only 86*l.* 2*s.* 5*d.* as the price of the loan in a 3 per cent. stock, clear of all dividend, on the 6th of August, 1835, the date of the first payment on the loan.

Again, the price of 86*l.* 2*s.* 5*d.* for a 3 per cent. stock gives a rate of interest of 3*l.* 9*s.* 8*d.* per cent., whereas the Chancellor states that the money is borrowed at 3*l.* 7*s.* 6*d.* per cent.; and therefore this price of 86*l.* 2*s.* 5*d.* for a 3 per cent. stock neither squares with the rate of interest nor with the price of 16*l.* 17*s.* 4¼*d.* for the long annuity; and consequently the same loan is at two different prices and two different rates of interest, which is impossible.

Now the only way to get out of this dilemma is to sink the value of the long annuity, and then the price of consols will rise in the same proportion. But to sink the value of the long annuity is to raise the rate of interest, and then the incongruity will be equally great as before; for, in the first case, while the price of the annuity answered to a rate of interest of 3*l.* 7*s.* 6*d.* per cent., the price of consols answered to a rate of interest of 3*l.* 9*s.* 8*d.* per cent.; so is it the reverse in the second case, and while the price of consols answers to a rate of interest of 3*l.* 7*s.* 6*d.* per cent., the price of the long annuity answers to a rate of interest of 3*l.* 9*s.* 8*d.* per cent. And, therefore, there is an incompatibility and inconsistency in these things which cannot be reconciled, and consequently it is impossible that the money can have been borrowed at 3*l.* 7*s.* 6*d.* per cent.

Secondly, as the Chancellor of the Exchequer, by the terms of the contract, gives 75*l.* consols, 25*l.* reduced, and 13*s.* 7*d.* long annuity, in consideration of 100*l.* in money, and that he also allows a discount of 1*l.* 19*s.* 9*d.* for prompt payment, so, if this money has really been borrowed at 3*l.* 7*s.* 6*d.* per cent., will these amounts of stock, cast out at prices which correspond to a rate of interest of 3*l.* 7*s.* 6*d.* per cent., produce with the addition of the discount exactly 100*l.*

Now the prices that answer to a rate of interest of 3*l.* 7*s.* 6*d.* per cent. are 16*l.* 17*s.* 4¼*d.* for the long annuity, and 88*l.* 17*s.* 9*d.* for a 3 per cent. stock, and which prices are clear of all dividend on the 6th of August, 1835, the date of the first payment on the loan. At these prices the matter stands as follows :—

£75 consuls.
25 reduced.

£100 of 3 per cent. stock . .	£88	17	9
13⅐ long annuity £16 17 4¼ .	11	9	1¼
Discount . . .	1	19	9
	£102	6	7¼
Sum paid .	100	0	0
	£2	6	7¼

And, therefore, we see, that when cast out at prices which correspond exactly to a rate of interest of 3*l.* 7*s.* 6*d.* per cent., the quantity of stock given by the Chancellor of the Exchequer produces 2*l.* 6*s.* 7¼*d.* beyond the sum of 100*l.*, which he receives in consideration of the said stock, and, therefore, it is impossible that the money can have been borrowed at 3*l.* 7*s.* 6*d.* per cent.

If the discount had been left out of the calculation, we should have had precisely the same result, for then the case would have stood thus:—that in consideration of a net sum of 98*l.* 0*s.* 3*d.* the Chancellor of the Exchequer gives a certain amount of stock, which, at prices answering to a rate of interest of 3*l.* 7*s.* 6*d.* per cent., is worth 100*l.* 6*s.* 10¼*d.*, and then we have precisely the same surplus of 2*l.* 6*s.* 7¼*d.* as before.

Thirdly, we have seen that a rate of interest of 3*l.* 7*s.* 6*d.* per cent. answers to a price of 88*l.* 17*s.* 9*d.* per cent. for consols. Now, on the 4th of August, the day after the loan was contracted, the average price of consols was 90 per cent., and, therefore, the real premium on the omnium of the loan, to be conformable to the price of consols, ought to have been 1*l.* 2*s.* 3*d.* per cent., but the average premium on the omnium, on the 4th of August, was 3 per cent.; and, therefore, it should seem that the buyers of omnium were such very stupid calculators as to give nearly 2 per cent. more for the article than it was worth; which is not only an impossible supposition, but the very reverse is the fact, for on that very day the omnium of the loan was cheaper than the stock of which the loan was composed, and so that it was profitable to buy omnium and pay up the instalments in full, and then sell the stock, as may very easily be made appear; for the average price of consols, as we have already seen, was 90, the average price of reduced was 90½, and the average price of long annuity was 16*l.* 9*s.* 2*d.*, and consequently the matter stood thus :—

£75 Consols	90	£67	10	0
25 Reduced	90½	22	12	6
13*s.* 7*d.* Long Annuity	£16. 9*s.* 2*d.*	11	3	7
		£101	6	1
Net sum to be paid for the above stock, according to the terms of the loan		98	0	3
Surplus		3	5	10

And, therefore, the real value of the omnium was a premium of 3*l.* 5*s.* 10*d.* per cent., and the market-price being only

3*l.* per cent., the omnium was 5*s.* 10*d.* per cent. below its real value as compared with the price of stock; and, in a greater or less degree, this we believe was generally the case throughout the whole period in which there were transactions in omnium.

And, therefore, handle and state the matter as we will, the results are such, that it is plainly an impossibility this money could have been borrowed at 3*l.* 7*s.* 6*d.* per cent.; but the real rate of interest, as we have proved in the first part of this discourse, was 3*l.* 9*s.* 3$\frac{97}{100}$*d.* per cent., with dividend from the 5th of July, and clear of all dividend on the 6th of August (the date of the first payment), it was 3*l.* 9*s.* 6$\frac{86}{100}$*d.* per cent., as is shown in Note 1, at the end.

If it be now inquired, what ought to have been the price of the loan to correspond to a rate of interest of 3*l.* 7*s.* 6*d.* per cent.?—Our reply at once is, that it ought to have been 10*s.* 9$\frac{7}{8}$*d.* Long Annuity, and then the matter would have stood after the following fashion:—

£75 consols.
25 reduced.

£100 of 3 per cent. stock for	£88	17	9
10*s.* 9$\frac{7}{8}$*d.* long annuity at £16 17 4¼	9	2	6
Discount for prompt payment	1	19	9
	£100	0	0

And this statement it is impossible to contradict; for the price of the Long Annuity stands in exact relation to the price of the Consols and the Reduced, and each corresponds to a rate of interest of 3*l.* 7*s.* 6*d.* per cent., and the whole, with the addition of the discount, makes exactly the sum of 100*l.*

This being therefore the true state of things, if the Chancellor of the Exchequer had really made his contract at a rate of interest of 3*l.* 7*s.* 6*d.* per cent., then 15,000,000*l.* in money would have been equivalent to a capital of 16,875,000*l.* in 3 per cent. stock, with dividend from 6th August. But according to the terms in which the loan is actually concluded, the 15,000,000*l.* in money is equivalent to a capital of 17,392,829*l.* in 3 per cent. stock, with dividend from 6th August. The difference is therefore 517,829*l.* in 3 per cent. stock, the annual charge on which is 15,535*l.*

And if we deduct the discount from the 15,000,000*l.* (which is an incorrect method), and fix the amount of money borrowed at 14,701,875*l.*, which is the Chancellor's own statement, then the matter will stand thus:—

The rate of interest at which the loan is actually made being 3*l.* 9*s.* 6$\frac{86}{100}$*d.* per cent., and the rate of interest at which the Chancellor avers it to be made, being 3*l.* 7*s.* 6*d.* per cent., the difference is 2*s.* 0$\frac{86}{100}$*d.* per cent., which, on a capital of 14,701,875*l.*, amounts to a difference in annual charge of 15,229*l.*, and is equivalent to a capital of 507,633*l.* in a 3 per cent. stock.*

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* According to Mr. Finlaison, the government calculator, the rate of interest on the present loan, after reducing the Long Annuity to a perpetuity, is 3*l.* 9*s.* 6$\frac{64}{100}$*d.* per cent., clear of all dividend on the 3rd of August, 1835, the date of the loan.

After deducting the amount of the discount and the accrued dividend, he says, that the net sum received by the government in money was 14,621,311*l.*, and that the whole loan is equivalent to a capital of 16,949,268*l.* in 3 per cent. stock, and to an annual charge in perpetuity of 508,478*l.*

With respect to the loan in 3½ per cents., according to Mr. Hume's Resolutions, Mr. Finlaison says, that the rate of interest, clear of all dividend, on the 3rd of August, is 3*l.* 13*s.* 10*d.* per cent.

In these calculations there are two small mistakes. The first in computing the accrued dividend only to the 3rd of August, the date of the contract for the loan; whereas it ought to have been cast out to the 6th August, the date of the deposit. Had this been done, the interest would have been the same as we make it in Note 1.

The second consists in leaving out the discount and accrued dividend as a charge to be represented by an equivalent amount of stock, and thereby considering the loan as for a sum of only 14,621,311*l.*, instead of 15,000,000*l.*

As these mistakes are, however, of no great moment, and might easily have been made by any man, whatever his ability, and however great his care and attention, we now propose to consider the matter precisely according to Mr. Finlaison's own statement.

The capital of the present loan, in 3 per cent. stock, is 16,949,268*l.* The annual charge on this stock is 508,478*l.* Its value in money, at the price of the contract, is 14,621,311*l.*, and the rate of interest is 3*l.* 9*s.* 6$\frac{64}{100}$*d.* per cent.

With respect to the proposed loan in 3½ per cents., the rate of interest, according to Mr. Finlaison, being 3*l.* 13*s.* 10*d.* per cent., the sum of 14,621,311*l.* (the net produce of the present loan) is equivalent to a capital of 15,422,001*l.* in 3½ per cent. stock, and to an annual charge of 539,770*l.* But, after the reduction to 3 per cents., the annual charge will be diminished to 462,660*l.*

And, therefore, it results that, previous to the reduction, the gain on the present loan, as compared with a loan in 3½ per cents., is an annuity of 31,292*l.*; but after the reduction, there is the gain of a perpetual annuity of 45,818*l.* in favour of the 3½ per cents.

And, therefore, if this reduction should take place at the end of 5 years, the gain in favour of the 3½ per cents. will be a perpetual annuity of 45,818*l.* deferred for 5 years, the present value of which, at 3½ per cent. during 5 years, and 3 per cent. for ever after, is	£1,299,890
Minus the present value of an annuity of 31,292*l.* for 5 years at 3¼ per cent., which is	143,338
	£1,156,552

And, therefore, under the related circumstances, the clear gain in present value is 1,156,552*l.*

If the reduction should take place in 10 years, the gain in present value is £841,044

The Chancellor further says, that the annual charge resulting from the loan is 507,022*l.*; but this is the charge free of the discount of 298,125*l.*, which he leaves entirely out of the question.

But even this contradicts his assertion that the money is borrowed at 3*l.* 7*s.* 6*d.* per cent.; for this charge of 507,022*l.* having reference, upon his own showing, to a capital of 14,701,875*l.*, this is equivalent to a rate of interest of 3*l.* 8*s.* 11$\frac{55}{100}$*d.* per cent.

Here, therefore, is a notable mistake respecting the rate of interest, and this plunges the Chancellor into another; for, in the following part of his speech, he says, that the loan had been contracted on more favourable terms than the average price of Consols during the last six years, and that, as compared with this average price there is a saving by the present loan in annual charge of 2675*l.*; all which, is very erroneous—for how stands the fact? According to the official return of prices, the mean price of Consols, for the six years preceding the present loan, was 87*l.* 11*s.* 5$\frac{1}{8}$*d.* per cent., which gives a mean rate of interest of 3*l.* 8*s.* 6$\frac{7}{10}$ *d.* per cent.

If we calculate the mean rate of interest on the same prices by the method of laying out equal sums of money in the purchase of stock at the different prices, then the mean rate of interest is 3*l.* 8*s.* 8$\frac{17}{100}$*d.* per cent.

Now, the first is the true principle; for it is essential to an accurate and perfect mean, that the aggregate amount of stock and annuity should accord with the aggregate amount of price; and that the mean of the aggregate amount of stock and annuity should accord with the mean of the aggregate amount of price, and this can only be accomplished by the purchase or sale (as the case may apply) of equal quantities of stock at each various price. The mean rate of inte-

In 15 years	572,498
20 ,,	343,931
25 ,,	149,392
29 ,,	14,828

But if the reduction should be delayed to 30 years, there will be a loss of 16,188*l.* in present value.

This is then the state of the matter according to the calculations of Mr. Finlaison; and the results so nearly agree with those we have given in Note 1, that there is but little to choose between them. The reason of the difference we have already stated.

After this, we believe the Chancellor of the Exchequer will hardly venture to affirm that the money of the present loan is raised at a rate of 3*l.* 7*s.* 6*d.* per cent

The precise period when the 3¼ per cents. will be reduced is beyond the reach of our skill or of that of Mr. Finlaison to determine: but the respective rates of interest on the two loans being determined, it is most certain that, let the reduction take place when it will, all the results must be as we have stated.

rest then derives solely and simply from the mean of the various prices, and this we say is the true method.

But if (as by the second method) equal sums of money be applied to different prices, this will produce unequal quantities at each several price, and then the aggregate amount of stock and annuity will not answer to the aggregate of the price, nor will the mean amount of stock and annuity answer to the mean of the price. And therefore the principle is not correct: but to avoid all cavil we will state the matter both ways.

By the first method the mean rate of interest on Consols during the six years preceding the present loan was 3*l*. 8*s*. $6\frac{17}{100}$*d*. per cent., and the rate of interest on the present loan being 3*l*. 9*s*. $6\frac{86}{100}$*d*. per cent., the difference is 1*s*. $0\frac{69}{100}$*d*. per cent. that the rate of interest on the present loan exceeds the rate of the six years antecedent. This difference on a capital of 14,701,875*l*. amounts to 7,774*l*., that the annual charge on the present loan exceeds the annual charge resulting from the mean price of Consols during the six preceding years; and which, added to the 2,675*l*. that the Chancellor says it was less, makes a total mistake of 10,449*l*. in annual charge, which is equivalent to a capital of 348,300*l*. in a 3 per cent. stock.

By the second method, the mean rate of interest on Consols during the six years preceding the loan was 3*l*. 8*s*. $8\frac{17}{100}$*d*. per cent., and the rate of interest on the present loan being 3*l*. 9*s*. $6\frac{86}{100}$*d*. per cent., the difference is $10\frac{69}{100}$*d*. per cent., which in a capital of 14,701,875*l*. amounts to 6,540*l*. that the annual charge on the present loan exceeds the annual charge resulting from the mean price of Consols during the six years antecedent, and which, added to the 2,675*l*. that the Chancellor says it was less, makes a total mistake of 9,215*l*. in annual charge, and which is equivalent to a capital of 307,167*l*. in a 3 per cent. stock.

All this is in strict accordance with the speech of the Chancellor, in which he speaks of Consols only; but if we take the mean rate of interest, not from Consols alone, but from Consols and Reduced together, it is 3*l*. 9*s*. $0\frac{98}{100}$*d*. per cent., and this would diminish the Chancellor's error, but it would still be considerable, for it would amount to 6*d*. per cent.; which, in 14,701,875*l*., amounts to 3,675*l*. in the annual charge, and which, added to the 2,675*l*., makes a total mistake of 6,350*l*., which is equivalent to a capital of 211,667*l*. in a 3 per cent. stock.

It must however always be remembered, that this has nothing to do with the real merits of the question. Every loan must be judged of according to the particular state of things when it is made, and not according to the prices and circumstances of former periods of time. And, therefore, the terms of the present loan may be much worse than would have resulted from former prices, and yet be a good loan, or it might have been concluded on better terms than would have resulted from former prices, and yet be a bad loan. And so that, when all has been said, it comes to this, that the Chancellor of the Exchequer had no reason to boast of the terms of his loan, as compared with the mean price of Consols during the six preceding years. It may however be said in his favour, that if from the mean price of Consols during the last six years we make the same deductions for accrued dividend and discount as by the present loan (which in reason ought to be done), then the terms of the present loan are much more favourable than would have resulted from such mean price.

For the rest, we take no pleasure in pointing out errors, whether made by the Chancellor of the Exchequer or any other person: on the contrary, knowing what very poor and uncertain beings we all are, and that it may be his fate who corrects another to-day, himself to be caught in error to-morrow, we play the critic with reluctance; but as the Chancellor has insisted very strongly, and this more than once, that the money is borrowed at 3*l*. 7*s*. 6*d*. per cent.,* we fear they have some fallacious mode of reckoning these things at the Treasury, which does not merely apply to this particular loan, but to all loans generally. And yet the true way is very simple: it is this:—

If the loan consist entirely of a terminable annuity to which there is attached a portion of accrued dividend and a discount for prompt payment, then the value of the accrued dividend must be computed up to the day of the first payment on the loan, and which value, with the addition of the discount, must be deducted from the price. The reason of this is plain; for up to the first payment the accrued dividend runs against the government, and forms a charge; but after this the charge is in the discount.

The accrued dividend being computed to the day of the first payment, so is it evident that the annuity will date from this period, and thence to the end of the term for which it has been created will be the length of its duration.

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* See in "The Mirror of Parliament" the two speeches of the Chancellor on the 3rd August and the 4th September, 1835.

Having thus ascertained the net price of the annuity, and its time of continuance, the rate of interest at which the money has been borrowed in perpetuity is found by the usual method of proportion and approximation.

When a loan consists partly of terminable and partly of perpetual annuity (as in the case of the present loan), then the value of the terminable annuity must first be found at an assumed rate of interest, which, together with the accrued dividend on the permanent annuity, and the discount on the whole, must then be deducted from the gross price of the loan. The remainder will be the net price of the permanent annuity, and thence will be deduced the rate of interest. But as this, at the first trial, will not square to the rate of interest at which the value of the temporary annuity has been computed, we must then proceed, by the usual method of approximation, to find a rate of interest which shall be exactly the same, both for the final result and the temporary annuity. And this rate of interest when found will be infallibly correct, seeing it is the same both for the net price of the stock and the value of the temporary annuity.

When the loan consists of perpetual annuities of different denominations, and the dividends on which are payable at different periods, we must first ascertain the total amount of the annual charge on all the stock, created in consideration of the gross produce in money of the loan. Then the aggregate of the accrued dividends, up to the date of the first instalment, together with the discount, must be deducted from the gross amount of money raised by the loan. This being done, if we then multiply the annual charge by 100, and divide the product by the net produce in money of the loan, the quotient will be the rate of interest at which the money is borrowed.

And now if, acting on these principles, we would ascertain the whole amount of accrued dividend under the present loan, we must carefully attend to the following particulars.

The dividends on the Long Annuity, and the 3 per cent. reduced, are payable the 5th of April, and the 10th of October. The dividends on the 3 per cent. Consols are payable the 5th of July, and the 5th of January.

Now, from the 5th of April to the 6th of August (the date of the first instalment) there are 123 days, and from the 6th of August to the 10th of October (the day when the dividends on the Long Annuity and 3 per cent. Reduced are payable) there are 65 days.

From the 5th of July to the 6th of August there are 32 days, and from the 6th of August to the 5th of January there are 152 days.

The half-year's dividend on the 3,750,000*l.* 3 per cent. Reduced, due the 10th of October, amounts to 56,250*l.*, and therefore the accrued dividend on this stock is the $\frac{123}{188}$ of 56,250*l.*, which is 36,801*l.* 17*s.* 3*d.*, and from which, deducting 65 days' discount, from the 6th of August, to the 10th of October at 3*l.* 9*s.* 4*d.* per cent., leaves a net sum for accrued dividend of 36,574*l.* 13*s.* 5*d.*

The half-year's dividend on the 11,250,000*l.* 3 per cent. Consols, due the 5th of January, is 168,750*l.*, and therefore the accrued dividend on this stock is the $\frac{32}{184}$ of 168,750*l.*, which is 29,347*l.* 16*s.* 0*d.*, and from which, deducting 152 days' discount, from the 6th of August, to the 5th of January, at 3*l.* 9*s.* 4*d.* per cent., leaves a net sum of 28,924*l.* 3*s.*

With respect to the accrued dividend on the Long Annuity, this relies on a different principle, and consists in the difference between the value of an annuity for 24¾ years, and the value of an annuity for 24 years, 152 days, with the addition of 123 days accrued dividend: the term of 24¾ years being the duration of the annuity on the 5th of April, 1835, when free from dividend; and the term of 24 years, 152 days, being the duration of the same annuity, on the 6th of August, when there were 123 days of accrued dividend.

Now, the value of 1*l.* per annum, for 24¾ years, at 3*l.* 9*s.* 6$\frac{86}{100}$*d.* per cent. and half yearly payments, is £16,5037.4775

And the value of 1*l.* per annum for 24 years 152 days, at the same rate of interest, is . . . £16,3621.1150

Add the 123 days' accrued dividend, which after the deduction of 65 days' discount is . 0,3251.0833

16,6872.1983

Difference . . £ 0,1834.7208

Which difference of 0,1834.7208 years' purchase amounts, on the 101,875*l.* Long Annuity, to 18,691*l.* 4*s.* 4*d.*, and this is the amount of accrued dividend on the Long Annuity.

And therefore the whole matter as to the accrued dividend stands thus :—

Accrued dividend on Reduced	.	£36,574	13*s.*	5*d.*
„ Consols	.	28,924	3	0
„ Long Annuity	.	18,691	4	4
		£ 84,190	0	9
Add for discount	.	298,125	0	0
		£382,315	0	9

And so that the total amount for accrued dividend and discount on the present loan is 382,315*l.* 0*s.* 9*d.*, which, deducted from 15,000,000*l.*, leaves the net sum of 14,617,684*l.* 19*s.* 3*d.*, as the consideration in money, for 101,875*l.* of Long Annuity, and 15,000,000*l.* of 3 per cent. stock, clear of all dividend, on the 6th of August, 1835.

And now upon all this we would further remark, that as the greater the amount of accrued dividend and of discount, the less is paid for any given amount of stock or annuity; so is it visible, that all other things being equal, the greater the amount of accrued dividend and of discount, the higher the price at which the loan will be contracted. And therefore the accrued dividend and the discount are a charge to be deducted from the gross price of the stock; as otherwise the minister, by throwing in a large lump of accrued dividend, and allowing a heavy discount, may negotiate his loan on apparently very high terms, and then come down to the House of Commons, and sinking the question of the accrued dividend and the discount, and speaking only of the regular annual charge on the loan, boast of the low rate of interest at which he has raised his money.

Not only are the accrued dividends and the discount a charge, but they are also a charge which is equivalent to, and must be represented by, the creation of a commensurate amount of stock and annuity, and this for the following reasons:—

The dividends on the national debt are paid out of the consolidated fund, and the surplus of the consolidated fund is applied to the extinction of debt. And therefore, all other things being equal, the less the amount of accrued dividend, the greater will be the surplus of the consolidated fund, and the greater also the sum to be applied to the extinction of debt. On the other hand, the greater the amount of accrued dividend the less will be the surplus of the consolidated fund, and the less also the sum to be applied to the extinction of the national debt. Now to extinguish old debt is tantamount to a diminution in the creation of new debt; and therefore every diminution of the accrued dividend on a loan being tantamount to a reduction of the stock created by that loan, so is it manifest that whatever the nominal amount of stock created by a loan, still every diminution of accrued dividend virtually lessens the real amount of stock created, and this because it increases the surplus fund applicable to the purchase and extinction of debt.

On the other side, to prevent old debt from being extinguished is tantamount to the creation of new debt; and therefore every increase in the accrued dividend of a loan is tantamount to an increase of the stock created by that loan, and this because it increases the charge, and thereby lessens the fund applicable to the purchase and extinction of debt.

And therefore it is out of all doubt that the accrued dividends on a loan are a charge which is equivalent to, and must be represented by, the creation of a corresponding amount of stock.

The discount relies on the same principle, and is in fact nothing but accrued dividend under another name: for, suppose no part of the discount to be taken, but that the different instalments are paid as they become due, there is still a charge; for as the interest on the stock created by a loan either runs from the period of its creation, or from some anterior period, to give time for the payment, and to receive that by different instalments, and at various future periods, which ought to be paid at once, is to allow interest by anticipation; that is, it is to allow interest on money before it is received, and this is a *bonus*, and every *bonus* is a charge which is equivalent to the creation of so much stock.

The discount is therefore of precisely the same nature, and is but another name for accrued dividend; and it must always be noted, that what is called discount does not become a charge from the fact of discount being actually taken, but from the circumstance that time is allowed for the payment of money which is chargeable with interest either from the date of the contract or from some anterior period, and for the time so allowed the discount is held to be an equivalent. All which is clear at first sight; for, suppose the first subscriber to a loan could make as much by the use of his money during the intervals of the different instalments as by paying his subscription in full and taking the discount, it would be a matter of indifference whether he did the one or the other. He would make the same gain either way, and this gain would arise from the circumstance that time was allowed for the payment of money on which he, nevertheless, was to receive the same interest as if this money had actually been paid.

The charge for what is termed discount does not therefore arise from the fact of discount being actually paid and taken, but from the circumstance that time being given for the payment, interest is allowed on money before it is received, and for which time the discount is merely an equivalent.

And now the sum of all is this:—the charge on every debt, whether public or private, must necessarily be in a compound ratio of the sum borrowed, and the rate of interest; and so that if one man borrow 100*l.* at 5 per cent., and another 200*l.* at 2½ per cent., the charge in both cases is the same, although the sum borrowed in one case is double that of the other. Now in the present case, the sum borrowed and actually paid by the subscribers to the loan is 15,000,000*l.*, and the rate of interest is 3*l.* 9*s.* 6$\frac{86}{100}$*d.* per cent., and therefore it is out of all doubt that the annual charge is 521,875*l.*, and that this is equivalent to a capital of 17,392,829*l.* in 3 per cent. stock.

And now we would farther observe, that if the money of a loan be wanted at the periods of the different instalments and no sooner, and that then the loan should be paid up either in whole or part, it is evident that to the extent of the sum actually paid for discount this would be a fresh charge in addition to all the rest, and this by reason that discount would be allowed on money, that must for a time be idle and without employment.

All we have here said may be easily illustrated: for, suppose an individual should require 1200*l.* in the course of a year, and this in twelve equal monthly sums of 100*l.*; if he should borrow all the money at once upon condition that he should receive it by instalments at the twelve stipulated periods, but that the interest on the whole 1200*l.* should run from the beginning, it is plain that he would be injured, because he would pay interest on money before he had received it.

Suppose this individual should make a further stipulation that he would allow a discount for prompt payment, and thereupon the whole sum of 1200*l.* should be paid in full, and discount taken. In this state of things it is clear that he could not apply the money to its original purposes, for it was not wanted all at once, but at various monthly periods; and therefore, unless he could employ the money during the various intervals of these monthly periods he would again sustain an injury.

Now this applies exactly to a public loan, the money of which is to be received by instalments and a discount allowed for prompt payment. There is first the injury of giving time for the payment, and thereby paying interest on money by anticipation and before it is received, and this injury amounts to the aggregate sum which may be made by the use of the money during the intervals of the different instalments at the rate of interest at which the money is borrowed. And in this there can be no mistake, because this is the sum which the government actually loses and pays in dividend.

This is the first injury; the second injury arises from discount being paid on the receipt of money before it is wanted.

Such being therefore the principles, how stands the fact in the present instance? Why, that owing to the unjustifiable proceedings of the Bank of England, nearly the whole of the loan was paid in full before the month of January 1836, and so that the government actually paid the enormous sum of 228,966*l.* for discount on money that was received before it was wanted. All which appears from the official return.

It also appears from the same return, that the cash paid to the West India planters amounted to 15,055,459*l.* And therefore, if there had neither been accrued dividend nor discount, but that the gross sum of 15,000,000*l.* which was raised by the loan had been a net sum, still it would not have been sufficient to pay even the West India planters, and much less when to this payment must be added the accrued dividend and discount arising out of the terms and conditions of the loan itself.

And therefore when taken with all its adjuncts and accessories, this was not a loan for the mere sum of 15,000,000*l.*, but it was truly and virtually a loan for the sum of 15,228,966*l.*, and which is composed of the following particulars.

1. The net sum of 14,617,685*l.* produced by the loan, clear of all dividend and discount.

2. The sum of 228,966*l.* actually paid for discount to the subscribers.

3. The sum of 84,190*l.* for accrued dividend which does not specially appear, but merges in the general account of dividends charged on the consolidated fund.

4. The sum of 298,125*l.* which ranks as discount, but which is, virtually, so much accrued or surplus dividend, arising from the circumstance of interest being allowed on the money before it was received. This also merges in the general account of dividends charged on the consolidated fund.

The aggregate of these four articles is 15,228,966*l.*, and not one of these may be contradicted: for, suppose there had been neither accrued dividend nor discount, and that the interest on the different sums constituting the whole of the loan had run only from the dates of the different instalments, is it not palpable, not only that a net sum of 15,000,000*l.* would have been received, but also that the consolidated fund, retaining all the money which it was called upon to pay, for accrued dividend and discount, would have been richer to the extent of 611,281*l.*? And as, with this sum, debt would have been bought up and extinguished, which now remains, so is it evident that the abstraction of this money from the consolidated fund, is equivalent to the contracting of so much new debt. In a word, to take 611,281*l.* from the consolidated fund, is virtually the same thing as leaving the consolidated fund undisturbed, to borrow this sum of the public: and as to borrow this money of the public immediately increases the loan, so is the loan increased to the same amount, by taking the money from the consolidated fund. And, therefore, the matter finally resolves itself into this: that, in consequence of the accrued dividend and the discount, it becomes necessary to borrow and pay interest on a gross sum of 15,228,966*l.* in order to receive a net sum of 14,617,685*l.*

But then it will be said, that if there had been no accrued dividend and no time allowed for the payment, or an equivalency in discount, so high a price would not have been obtained for the stock: admitted; but we give credit for the whole of the price, and we then show irrefragably, that from this price there are deductions to be made; and, moreover, that the loan is attended with certain consequences, which render it necessary that further debt should be contracted.

The loan, with its adjuncts and corollaries, is therefore for a sum of 15,228,966*l.*, and then, taking the interest on the whole sum, at the same rate of 3*l.* 9*s.* 6$\frac{86}{100}$*d.* per cent., at which the 15,000,000*l.* was borrowed, this is equivalent to an annual charge of 529,750*l.*, and to a capital of 17,658,320*l.* in a 3 per cent. stock.

And now it will be asked whether the actual payment of discount in virtue of the terms of a loan, when there is no immediate employment for the money, does not aggravate the conditions of the loan, and increase *pro tanto* the rate of interest at which the money is borrowed? To this our reply is, that we must distinguish:—if the discount allowed for prompt payment be less, or do not exceed, the current rate of interest, then if money be paid in full, although such money be not wanted, still it is no aggravation of the terms of the loan, and this by reason that he who pays the money does but get an equivalent for the time allowed him for payment, and this being no variation from the terms of the original contract cannot alter the rate of interest at which the money was borrowed; and this is merely the case of a man who, having money to spare, prefers the discounting of his own acceptance to that of any other person of equal solidity. The interest in both cases being the same, he gains no more in one case than he would have gained in the other.

But if the discount allowed for prompt payment be more than the current rate of interest, then it is clear that the discount being more than equivalent to the time allowed for payment, the terms of the original contract are aggravated to the extent of the difference between the two rates of interest, and a direct encouragement having been offered to the payment of the loan in full, it may be doubted whether all the discount paid under such circumstances, may not be considered as increasing *pro tanto* the rate of interest at which the money was originally borrowed.

But however the matter may stand in principle, yet as it is certain in fact that all discount allowed on the payment of money for which there is no immediate employment must *ex necessitate rei* tend to the contracting of fresh debt either formally or virtually, so is it in all cases to be advised that the allowance for discount should be under the current rate of interest, and so that there may exist no inducement to pay up the loan in full.

And now it will naturally be asked whether, in the instance of the present loan, the discount allowed by the government was a strong inducement to pay up the loan in full? To this we reply without the least hesitation that it was not; for at the period of the loan money was scarce; the quantity of Bank of England paper in circulation and deposit was less by 4,900,000*l.*, than at the same period in 1834, and the rate of interest charged by the Bank on approved securities was 4 per cent., while the discount allowed by the government was equal to only 3¾ per cent. In this state of things, it is evident not only that there was no inducement to pay up the loan in full, but as the thing could never have been accomplished to any the least considerable extent without the aid and intervention of the Bank of England, so may we pronounce at once that few if any payments would have been made in full, and for this reason—that to borrow money of the Bank at 4 per cent., in order to pay it over to the government, which allowed only 3¾ per cent., would have been a very foolish and ridiculous operation.

And therefore if things had been allowed to remain in this state, we may be sure that none, or but a very small part of the loan would have been paid in full. But no sooner was the loan taken than the Bank, to gain its private ends, dropped the rate of interest for advances on approved securities to 3½ per cent., and even agreed to make advances on stock; a thing so repugnant to all sound principle and even to its own rules and method of action, that it had never been practised by the Bank except in the famous bubble period of 1824-25.

The rate of interest charged by the Bank for advances on stock and other approved securities being thus lowered to 3½ per cent., while the government allowed 3¾ per cent., there was consequently ¼ per cent. to be gained by borrowing money of the Bank, and paying it over to the government; and as this money was not immediately wanted by the government, so is it clear that without the advance of a single shilling, and simply by transfers from one account to another, the Bank made enormous profits at the expense of the government. Nor was this all: the currency was thrown into confusion; the power to obtain money *ad libitum* fostered and encouraged the wild operations of 1835-36: this brought on the crisis of 1836-37, and the end of all was that while misery and ruin were entailed upon thousands, the government was brought to the necessity of raising the interest on exchequer bills, and so that adding this loss to the loss by the discount, the whole loss sustained by the government will not fall far short of a million.

Now for all these things the Bank, as the only criminal, ought to be brought to account; for, not only is the government entirely free from blame, but, on the contrary, it is greatly to be commended for the measures it took to prevent the loan from interfering with the currency, and which were so simple, and yet so admirably adapted to the purpose,* that had the Bank not interfered in the manner we have described, it is impossible that the loan could have disturbed the currency.

Come we now to another point. The Chancellor of the Exchequer says that in his loan he has not abandoned the principle of redemption, but that, on the contrary, he had proceeded upon a principle that would afford a reduction of upwards of 100,000*l*. By which he means that the 101,875*l*. Long Annuity, which forms part of the loan, will in the year 1860 become extinct. But this is no valid argument: on the contrary, and as the schoolmen phrase it, this is to "shift kinds,"—a practice which never stands with sound and sincere logic. In all his preceding calculations he has turned this terminable annuity into permanent annuity for the purpose of reducing his actual charge, and thereby the principle of redemption is excluded. Now, on the contrary, and to serve another purpose, he shifts it back again from a permanent to a terminable annuity. But as he cannot have both, he must make his election, and either upon a principle of equivalency consider the whole as permanent, or else take the simple facts of the case, according to which, part is permanent and part terminable. In the first case, there is in no part of his loan any element of redemption, but his present actual charge is diminished. In the second, his loan contains an element of redemption, to the extent of the Long Annuity, but then his present actual charge is increased.*

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* See Appendix I.

One more remark, and we have done. Mr Hume having observed that the public are always anxious to invest in that species of stock which yields the highest rate of interest, the Chancellor attacks him on this point, and he says, that the contrary was shown on the reduction of the 4 per cents. in 1830, when an offer being made of a 5 per cent. stock, with a guarantee against redemption for 40 years, the only amount subscribed, was the paltry sum of 470,000*l.*

On all which we remark, that in a general point of view, and the nature and all the adjuncts of the security being the same, there can be no question of the truth of Mr. Hume's observation; and to maintain the contrary proposition is to maintain, that all other things being equal, men do not prefer a high to a low rate of interest. With respect to the particular instance alluded to by the Chancellor, it proves nothing; for in the reduction of the 4 per cents. in 1830, those who accepted 3½ per cents. were guaranteed against a further reduction of interest for 10 years, but those who accepted 5 per cents. under a guarantee till 1873, which was 43 years, were to sacrifice 30 per cent. of their capital; and therefore upon calculation it is quite clear, that if even the 3½ per cents. should be reduced to 3 per cents. at the expiration of 10 years, yet the holders of these 3½ per cents. by retaining the whole of their capital, would eventually be in a better situation than the holders of the 5 per cents. who had made a sacrifice of 30 per cent., and every year that the reduction of the 3½ per cents. should be delayed beyond 1840 would still further improve the position of the subscribers to this stock, as compared with the subscribers to the 5 per cent. stock. The instance, therefore, which the Chancellor alleges is faulty; and if so few accepted a 5 per cent. stock in 1830, it is because the terms proposed held out no inducement.*

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* See Note 4, at the end.

This brings us to an end of the discussion, and we would only further remark, that, to our thinking, the Chancellor of the Exchequer did wrong to take umbrage at Mr. Hume's Resolutions, and the speech with which they were accompanied; neither was his defence conducted after the most orthodox fashion, for Mr. Hume attacked him on the principle, and he defended himself on the detail, and therefore all he said was beside the question. In point of price, and terms, and conditions, his loan might have been the best loan in the world, and yet Mr. Hume might be right; or in all these respects it might have been the worst loan in the world, and yet Mr. Hume might be wrong. In our own particular, and as far as humble opinion goes, and fortified as this opinion has been by conversing at the time with men of great and undoubted skill and experience, we should certainly say that, all circumstances taken into consideration, the bargain was conducted on fair and reasonable terms, and such as reflect credit both on the Chancellor of the Exchequer and the contractor Mr. Rothschild. But still this leaves the principle untouched, and it may always be urged against the Chancellor, that the same good sense and ability which he displayed in negotiating the terms of the present loan, would have enabled him to contract a loan on equally advantageous terms in stock of a higher denomination. The transaction would then have been perfect, as well in the principle as the detail.

This ends our examination of Mr. Hume's resolutions, but this does not terminate the inquiry: for it was suggested by Mr. Hume, that there should be no loan whatever, but that the West India planters should be compensated by means of a payment in 3½ per cents. at par.

Had this suggestion been adopted, we should have had the following comparative state of things:—

The present loan, including the accrued dividend to the 6th of August, the time allowed for payment, and the discount actually paid in consequence of the operations of the Bank, is equivalent to a capital of 17,658,320*l.* in a 3 per cent. stock, and to an annual charge of 529,750*l.*

Whereas if the West India planters had been paid in new 3½ per cents, at par, the following would have been the state of things.

After deducting the accrued dividend to the 3rd of August, the gross price of 100 for the new 3½ per cents. leaves a net price of 99*l.* 14*s.* 6¾*d.* (accurately 99.72828) per cent.; at which price the sum of 15,000,000*l.* is equivalent to a capital of 15,040,869*l.*, and on which the annual charge at 3½ per cent. is £526,430

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* See Note 5, at the end.

Charge on the present loan	529,750
Difference . . .	£ 3,320

And therefore, if even there should be noreduction of the 3½ per cents., still the annual charge resulting from a payment in new 3½ per cents., would be less by 3,230*l.* than the charge on the present loan.

But if the 3½ per cents. should be reduced to 3 per cents., the annual charge would be reduced from 526,430*l.* to £451,226

And the charge on the present loan being	529,750
The difference is	£ 78,524

And therefore, as previous to the reduction the charge on the 3½ per cents. is 3,320*l.* less than on the present loan, and that after the reduction it is 78,524*l.* less than on the present loan; so if the 3½ per cents. should be reduced to 3 per cents., in 5 years, the loss on the present loan, as compared with a payment in 3½ per cents. at par, is the present value of an annuity of 3,320*l.* for 5 years, *plus* the present value of a perpetual annuity of 78,524*l.* to commence at the end of 5 years.

The first value at 3½ per cent. and half-yearly payments is	£ 15,108
The second value at 3½ per cent. during 5 years and 3 per cent. for ever after, is . .	2,200,580
	£2,215,688

And therefore under the related circumstances, the loss by the present loan, as compared with a payment in 3½ per cents. at par, is £2,215,688

If the reduction of the 3½ per cents. to 3 per cents. should take place at the end of 10 years, then upon the same principle and by the same method of computation the loss will be £1,877,901

If in 15 years, the loss will be .	1,593,912
„ 20 „ „ „ . .	1,355,158
„ 25 „ „ „ . .	1,154,428
„ 30 „ „ „ . .	985,669
„ 50 „ „ „ . .	539,909
„ 75 „ „ „ . .	281,793
„ 100 „ „ „ . .	173,376

And if the 3½ per cents. should never be reduced to 3 per cents., the loss on the present loan, as compared with a payment in 3½ per cents., will be a perpetual annuity of 3,320*l.* the value of which at 3½ per cent. is 94,857*l.*

The difference is therefore very considerable, nor is this all: but the derangement of the currency of which, through the operations of the Bank of England, the loan was incidentally the occasion; the loss to the public on the interest on exchequer bills; the decline in the revenue; the decay of the trade and industry of the country, and all the dire and dreadful consequences which ensued from this derangement of the currency, would have been avoided if the suggestion of Mr. Hume had been adopted. In short, the benefits would have been incalculable.

But though the suggestion of Mr. Hume was not adopted to its full extent, and so as to prevent the loss of which the loan is the direct occasion, and all the evil consequences to which it gave rise incidentally, it nevertheless appears that it was adopted by the government in part, and the claims for the colony of Barbadoes were liquidated not in money but by means of a payment in 3½ per cent. Reduced at the market price of the 3rd of August 1835 (99*l.* 5*s.* per cent.), being the day on which the contract was made for the present loan.

The claims for the Cape of Good Hope, the Mauritius, &c., were in like manner liquidated by a direct payment in 3½ per cent. Reduced, at the market price of 99*l.* 17*s.* 6*d.* per cent.

The Barbadoes claims, having been settled by means of a payment in 3½ per cents., at 99*l.* 5*s.* per cent. (which was the price on the 3rd of August 1835, when the present loan for 15,000,000*l.* three per cents., and 101,875*l.* Long Annuity was contracted), it will not be amiss that we institute a comparison between these two different modes of liquidation.

To defray the compensation to the colony of Barbadoes, a capital in Reduced 3½ per cents. was created of 1,734,353*l.* 11*s.* 7*d.*, on which the annual charge for interest was 60,702*l.* 7*s.* 6*d.*, and which, at the price of 99*l.* 5*s.*, was equivalent to a sum of 1,721,345*l.* 19*s.* 7*d.* in money; but there was due for accrued dividend on the above stock the sum of 19,247*l.*, which, deducted from 1,721,345*l.* 19*s.* 7*d.* leaves 1,702,098*l.* 19*s.* 7*d.* as the consideration, clear of accrued dividend, for an annual charge of 60,702*l.* 7*s.* 6*d.*, which is at the rate of 3*l.* 11*s.* 4*d.* per cent. for money.

The rate of interest being therefore 3*l.* 11*s.* 4*d.* per cent. this sum of 19,247*l.* for accrued dividend is equivalent to a capital of 19,614*l.* in a 3½ per cent. stock, and to an annual charge of 686*l.* 9*s.* 10*d.*, which, added to the former capital of 1,734,353*l.* 11*s.* 7*d.*, and the former charge of 60,702*l.* 7*s.* 6*d.*, makes a total capital of 1,753,967*l.*, and a total annual charge of 61,389*l.*

Now this capital of 1,753,967*l.*, and the charge thereto attached of 61,389*l.*, discharged a debt due to the colony of Barbadoes of 1,721,346*l.*; and therefore in the same proportion a capital of 15,284,263*l.* in 3½ per cent. Reduced, and an annual charge of 534,949*l.* would have discharged a debt of 15,000,000*l.*, being the amount raised by the present loan; and the annual charge on the present loan (including the sum actually paid for discount in consequence of the unwarrantable proceedings of the Bank), being 529,750*l.*, the difference is 5,199*l.* that the annual charge on the present loan is less than the charge that would have resulted from a payment in Reduced 3½ per cents., at the market price of the 3rd of August 1835.

But if the 3½ per cents. should be reduced to 3 per cents. the annual charge on the capital of 15,284,263*l.* will be diminished to	£458,528
And the charge on the present loan being .	529,750
The difference is . .	£ 71,222

that the charge on the present loan will exceed the charge on the 3½ per cents.

And therefore supposing a reduction of the 3½ per cents. to take place at the end of 5 years, the loss by the present loan, as compared with a payment in Reduced 3½ per cents. at the price charged to the colony of Barbadoes, is the present value of a perpetual annuity of 71,222*l.* to commence at the end of 5 years, *minus* the present value of an annuity of 5,199*l.* for 5 years.

Now the rate of interest being 3½ per cent. during 5 years and 3 per cent. for ever after, the value of a perpetual annuity of 71,222*l.* deferred for 5 years is .	£1,995,947
Deduct the present value of an annuity of 5,199*l.* for 5 years, and which, interest being 3½ per cent., is	23,659
Remains .	£1,972,288

And therefore, under the related circumstances, the loss by the present loan, as compared with a payment in 3½ per cents. at the price charged to the colony of Barbadoes, is 1,972,288*l.*

If the reduction to 3½ per cents. should take place at the end of 10 years, then upon the same principle the loss will be	£1,634,512
If in 15 years the loss will be . .	1,350,513
If in 20 " "	1,111,757
If in 25 " "	911,028
If in 30 " "	742,268
If in 50 " "	296,509
If in 75 " "	38,393

But if the reduction should be deferred to 100 years, there will be a gain on the present loan as compared with a payment in 3½ per cents. of 70.024*l.*

And if the 3½ per cents. should never be reduced, the comparative gain on the present loan will be a perpetual annuity of 5,199*l.*, the value of which at 3½ per cent. is 148,543*l.*

This is, then, how matters would have stood in case there had been no loan, but that the claims for the island of Jamaica had been adjusted upon the same principle as those of Barbadoes.

Let us now see what is the actual state of things resulting from the liquidation of the claims for the colonies of Barbadoes, the Cape of Good Hope, the Mauritius, &c., by means of 3½ per cent. stock, at the market price of the day, as compared with a liquidation upon the terms and conditions of the present loan.

We have already shown that the debt due to the colony of Barbadoes was 1,721,346*l.* and that, to satisfy this debt, there was created in 3½ per cents. Reduced, at the price of 99*l.* 5*s.* per cent., a capital of . .		£1,734,353
The accrued dividend on this stock amounted to 19,247*l.*, and was equivalent to a further capital in 3½ per cents. Reduced, of .		19,614
		£1,753,967
The debt due to the colonies of the Cape of Good Hope, the Mauritius, &c. was 3,432,974*l.*; and to discharge this debt there was created in 3½ per cent. Reduced, at the price of 99*l.* 17*s.* 6*d.* per cent., a capital of	£3,437,270	
The accrued dividend amounted to 37,115*l.*, and was equivalent to a further capital in 3½ per cent. Reduced, of . . .	37,557	
		3,474,827
Total capital		£5,228,794
Annual charge		£ 183,008

And therefore a debt of 5,154,320*l.* in money was liquidated by means of an annual charge of 183,008*l.* But if the 3½ per cents. should be reduced to 3 per cents. this charge will be diminished to 156,864*l.*

On the other side: to liquidate a debt of 15,000,000*l.* the charge in perpetuity by the present loan is 529,750*l.*, and in this proportion the charge for a debt of 5,154,320*l.* would be 182,033*l.*, and the capital in 3 per cent. stock would be 6,067,767*l.*

And therefore previous to the reduction of the 3½ per cents. to 3 per cent., the charge on the present loan is 975*l.* less than on the 3½ per cents.; but after the reduction, the charge on the 3½ per cents. is 25,169*l.* less than on the present loan. And therefore,

If at the end of 5 years the 3½ per cents. should be reduced to 3 per cents., the comparative gain will be the present value of a perpetual annuity of 25,169*l.* deferred for 5 years, *minus* the present value of an annuity of 975*l.* for 5 years.

Now the rate of interest being 3½ per cent. during 5 years, and 3 per cent for ever after, the present value of a perpetual annuity of 25,169*l.* deferred for 5 years is £705,344

Deduct the present value of an annuity of 975*l.* for 5 years, which, interest being 3½ per cent., is 4,437

£700,907

And therefore, under the related circumstances, the gain by adopting the suggestion of Mr. Hume, and satisfying the claims for the colonies of Barbadoes, the Cape of Good Hope, &c., in stock, of a high denomination, in place of raising money by public loan in stock of a low denomination, is 700,907*l.*, and which upon a debt of 5,154,320*l.*, amounts to 13.6 per cent.

If the reduction to 3½ per cents. should take place at the end of 10 years, then upon the same principle the gain will be £584,840

If in 15 years, the gain will be . . 487,251
If in 20 „ „ 405,209
If in 25 „ „ 336,235
If in 30 „ „ 278,245
If in 50 „ „ 125,073
If in 75 „ „ 36,378

But if the reduction should be deferred to 100 years, there will be a loss of 876*l.*

And if the 3½ per cents. should never be reduced, the loss will be a perpetual annuity of 975*l.*, the value of which, at 3½ per cent., is 27,857*.

And now we will wind up the inquiry, with a statement of the whole of the debt incurred in consequence of the act passed for the abolition of slavery.

The 15,000,000*l.* of three per cents., and the 101,875*l.* Long Annuity created by the loan of 1835, was equivalent in perpetuity to a capital of 16,949,524*l.* in 3 per cent. stock, and to an annual charge of . . .	£508,486
The accrued dividend and discount on the stock so created, and amounting to 382,315*l.*, was equivalent to a capital of 443,305*l.* in a 3 per cent. stock, and to an annual charge of . .	13,299
	£521,785
And for the stock so created, including the accrued dividend, there was received the sum of 15,000,000*l.* But this sum not being sufficient to satisfy the claims in money, there was taken from the consolidated fund to supply the deficiency the sum of 677,835*l.*, to which must be added as taken from the same source the sum of 48,083*l.* for the expenses of the commission of the West India compensation, and the sum of 7,500*l.* for expenses incurred by the Bank of England for receiving the subscriptions of the loan, and making together a sum of 733,408*l.*, which, when cast out at the same rate of interest as the money raised by the loan, is equivalent to a capital of 850,407*l.* in 3 per cent. stock, and to an annual charge of .	25,512
	£547,297
Add charge of Bank management, at the rate of 300*l.* per million	5,473
	£552,770

And therefore the total debt incurred in consequence of the payments in money was equivalent to a capital of 18,243,236*l.* in 3 per cent. stock, and to an annual charge, including management, of 552,770*l.*

But besides the payments in money, the following stock, as we have already shown, was created in order to satisfy the

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See note 6 at the end.

claimants for the colony of Barbadoes, and the Cape of Good Hope, the Mauritius, &c.

To satisfy the claims for the colony of Barbadoes, there was created in 3½ per cent. Reduced Annuities a capital of		£1,734,353
And the accrued dividend on these annuities was equivalent to a further capital of		19,614
		£1,753,967
To satisfy the claims for the Cape of Good Hope, the Mauritius, &c., there was created in 3½ per cent. Reduced annuities a capital of	£3,437,270	
And the accrued dividend on these annuities was equivalent to a further capital of	37,557	
		3,474,827
		£5,228,794

And on which the annual charge for interest is	£183,008
Add charge of Bank management, at the rate of 300*l*. per million	1,569
	£184,577

And therefore the total charge arising from the payments in stock, is	£184,577
Add the charge arising from the payment in money, before stated	552,770
	£737,347

And therefore, to obtain the abolition of slavery, there has been incurred an annual charge in perpetuity of 737,347*l*.

This is the charge as permanent debt, and upon the principle of turning the Long Annuity into a perpetuity; but if we would extricate the Long Annuity from the perpetuity, and so as to particularize and distinguish between the permanent and the temporary charge, we must proceed after the following fashion:—

The debt in 3 per cent. stock created by the loan is 15,000,000*l*., and the annual charge	£450,000
Carried forward	£450,000

Brought forward	£450,000
The charge on the consolidated fund arising out of the accrued dividend and the discount on the loan, is equivalent to a debt of 443,305*l.* in a 3 per cent. stock, and to an annual charge of	13,299
The three items of charge before enumerated sustained by the consolidated fund, and amounting in the aggregate to 733,408*l.*, are equivalent to a capital of 850,407*l.* in 3 per cent. stock, and to an annual charge of	25,512
	£488,811
The debt in 3½ per cents., including the accrued dividend, is 5,228,794*l.*, and the annual charge	£183,008
	£671,819
Add charge of management on 21,522,506*l.*, at the rate of 300*l.* per million	6,457
Total permanent charge	£678,276
The charge on the Long Annuity till 1860, including management, is	102,639
Total actual charge	£780,915

It will be perceived that the charge for the money abstracted from the consolidated fund is computed at the same rate of interest as the loan, and this is correct: because the loan being contracted in money, it is quite natural that to all the extent that it fell short and the money had to be paid in another quarter, the rate of interest on what may be called the complement to the loan should be the same as on the loan itself.

It will likewise be perceived that the charge for Bank management is added as well to the charge for interest on the accrued dividend and discount as to the charge for interest on the money abstracted from the consolidated fund, and this also is correct: for if there had been neither accrued dividend nor discount to merge into the general account of dividends, and that no money had been abstracted from the consolidated fund to be specially applied to the compensation of the slave-owners, it is evident that this fund would have been richer to the extent of 1,060,140*l.*, and as this money would have been employed in the extinction of debt, and that when debt is extinguished a proportionate charge for management is also extinguished; so, on the other side, is it of plain consequence that, when debt subsists or is created, a proportionate charge for management also subsists or is created.

This ends our labours. Apart from the particular question relating to Mr. Hume's Resolutions, this book will be found, we believe, to contain principles respecting public debts and annuities which have never yet appeared in any other publication. To us, it seems that these principles are grounded in the first nature and constitution of things; and having, moreover, brought them in every case to the test of careful calculation, either these calculations, notwithstanding all our pains and industry, are erroneous, or there is no room for doubt or hesitation.

And therefore in the belief that our doctrine, however new in appearance, is as true as its importance is manifest, we shall conclude in the words of Montesquieu on a somewhat similar occasion: "*Je sais bien que je dis ici des choses nouvelles, mais, si elles sont vraies, elles sont très anciennes.*"

NOTES.

Note (1), referred to at page 69.

To this statement the following objections may be made:—

1. That the rate of interest at which the annuity is reckoned, being 3*l.* 9*s.* per cent., and this giving, in final result, a rate of 3*l.* 9*s.* 3$\frac{97}{100}$*d.* per cent. as the interest on the whole loan, when reduced to a perpetuity, the one does not agree with the other, and, therefore, it is impossible that this can be strictly correct.

2. That, in casting out the value of the annuity, money is made to increase at compound interest by yearly payments, whereas it ought to have been by half-yearly payments.

3. That the accrued dividends are only carried to the 5th of July, 1835, whereas they ought to have been carried to the 6th of August, 1835, the date of the first payment on the loan.

4. That no discount is deducted from the accrued dividends.

To which we reply, that these objections, though many in number, and true in principle, and true also in practice, (except, perhaps, the discount on the accrued dividend,) yet are of so little weight, and, regard being had to the magnitude of the operation, would make so small a difference in the final result of things, that we preferred, in all that related to Mr. Hume's Resolutions, to adhere to the principle on which they are constructed, and for this plain reason:—that, as the Resolutions now stand, any person moderately skilled in arithmetic will be able, by means of the usual compound interest tables, to verify all the calculations; whereas, the task would not have been quite so easy, and it would have required a much greater degree of skill, to calculate the value of the annuity by half-yearly payments, and at a rate of interest which should take in the fractional parts of a penny.

That nothing, however, may be left undone, we will now get rid of all these objections by stating the matter in the required way, and with a due and competent degree of exactness.

It will appear, we believe, by accurate computation, that, after reducing the Long Annuity to a perpetuity, and carrying the accrued dividends to the 6th August, 1835, (the day of the first payment,) the rate of interest at which the money is borrowed is 3*l*. 9*s*. $6\frac{86}{100}$*d*. per cent., and then the matter will be set forth in the following particulars.

The Long Annuity on the 6th of August, 1835, had 24 years, 152 days to run, and the value of 1*l*. per annum for this term of continuance, the rate of interest being 3*l*. 9*s*. $6\frac{86}{100}$*d*. per cent., and the annuity payable half-yearly, is	£16.362111
Add accrued dividend from 5 April to 6 August, less the discount on such accrued dividend from the 6th of August to the 10th of October . .	325108
	£16.687219
And, therefore, the value of 13*s*. 7*d*. Long Annuity is	£11.333404
Add	
Accrued dividend on 25*l*. Reduced from 5 April to 6 August, less discount	243833
The same on 75*l*. Consols from 5 July to 6 August, less discount	192828
Discount for prompt payment . . .	1.987500
	£13.757565
Which deducted from .	100
Leaves . .	£86.242435

as the price of the loan in a 3 per cent. stock clear of all dividend, on the 6th of August. And as this price of 86,242,435 (86*l*. 4*s*. 10*d*.) gives a rate of interest of 3*l*. 9*s*. $6\frac{86}{100}$*d*. per cent., and as this corresponds also to the rate of interest at which the annuity is computed, so is there no question that this is the true rate of interest at which the money is borrowed.

At this price and rate of interest, the amount of 3 per cent. stock, created by 15,000,000*l*. of money, is 17,392,829*l*., and the annual charge 521,785*l*.

And now, for the purpose of exact comparison, we must also add the accrued dividend to the 6th of August, on the loan in 3½ per cents.

According to Mr. Hume's resolutions, the gross price of the loan in 3½ per cents. is 97*l*., from which is to be deducted the discount on all the instalments except the first, and the accrued dividend to the 6th of August.

The price being 97*l.* and the first instalment 10*l.*, this leaves 87*l.* for the remaining instalments, the discount on which, for 403 days at 2 per cent., is 1*l.* 18*s.* 5*d.* (accurately 1.921151).

The dividends on the new 3½ per cents. being payable the 5th of July and the 5th of January, it is manifest that the 32 days accrued dividend on the 6th of August was the $\frac{32}{184}$ part of 1*l.* 15*s.* the amount of a half-year's dividend, less the discount from the 6th of August to the 5th of January.

Now, the $\frac{32}{184}$ of 1*l.* 15*s.*, is	304348
And the discount on this, from the 6th of August to the 5th of January, 152 days, at 3*l.* 14*s.* per cent., is	4689
Value of accrued dividend .	299659

And now the whole matter may be shown as follows:—

Gross price of 100*l.* stock		£97.000000
Deduct		
Discount . . .	£1.921151	
Accrued dividend . .	299659	
		2.220810
Net price . . .		£94.779190

And which price of 94,779,190*l.* (94*l.* 15*s.* 7*d.*) for a 3½ per cent. stock gives a rate of interest of 3*l.* 13*s.* $10\frac{37}{100}$*d.* per cent., at which rate the sum of 15,000,000*l.* in money will produce 15,826,193*l.* of stock, and on which the annual charge at 3½ per cent. is 553,917*l.*

But when the 3½ per cents. are reduced to 3 per cents., the annual charge will be only 474,786*l.*, and the annual charge on the present loan being 521,785*l.*, so does it follow,—

That, previous to the reduction, the annual charge on the 3½ per cents. exceeds by 32,132*l.* the charge on the present loan; but that, after the reduction, the charge on the 3½ per cents. is less by 46,999*l.* than the charge on the present loan. And, therefore,—

If the 3½ per cents. should be reduced to 3 per cents. at the end of 5 years, the gain by a loan in 3½ per cents., as compared with the present loan is the present value of a perpetual annuity of 46,999*l.* deferred for 5 years, *minus* the present value of an annuity of 32,132*l.* for 5 years.

Now interest being 3½ per cent. during 5 years, and 3 per cent. for ever after, and reckoning upon the principle of half-yearly payments for the deferred period, the present value of a perpetual annuity of 46,999*l.* deferred for 5 years is . .	£1,317,114
Deduct the present value of an annuity of 32,132*l.* for 5 years, which, interest being 3½ per cent. and half-yearly payments, is . . .	146,220
	£1,170,894

And, therefore, under the related circumstances, the gain by a loan in 3½ per cents. as compared with the present loan, is 1,170,894*l.* in present value—that is, value dating from 1835, the period of the loan.

If the reduction should not take place at the end of 5 years, but at the end of 10 years, then, upon the same principle and method of calculation, the gain in present value will be 838,189*l.*

If in 15 years, the gain will be . . .	£558,466
If in 20 " " . . .	323,299
If in 25 " " . . .	125,586

But if the reduction should be deferred to 30 years, there will be a loss on the 3½ per cents., as compared with the present loan, of 40,637*l.*

And now, if we would ascertain the precise period of reduction at which the two loans are equal, and so that it should be a matter of indifference whether to borrow money in a 3 per cent. stock, according to the terms of the present loan, or in a 3½ per cent. stock, according to Mr. Hume's Resolutions, we shall find this to be 28 years 254 days, barely: for it is demonstrable—the rate of interest being 3½ per cent. during the deferred period, and 3 per cent. for ever after, and upon the principle of half-yearly payments—that a perpetual annuity of 46,999*l.* deferred for 28 years, 254 days, is of precisely the same value as an annuity of 32,132*l.* for 28 years, 254 days, which is to commence immediately.

By comparing the present results with those to be found in the body of the work, it will be seen that, whether we calculate on the principle of half-yearly payments, and carry the accrued dividend to the 6th of August, as in the present case; or whether we go by the rate of yearly payments, and carry the accrued dividend only to the 5th of July, which is the case in Mr. Hume's Resolutions, the differences are very inconsiderable; and, therefore, we were justified in adhering to the principle of the resolutions; and this for the reason we have already given, that any person moderately skilled in arithmetic may verify all the calculations, but which would not have been altogether so light an affair if these calculations had been made upon the principle of the present note.

And now this deserves to be noted, that the difference between the present loan and a loan in 3½ per cents. mainly arises from the difference in the respective nominal capitals in stock which are created in consideration of equal sums of money.

In the case of the present loan, the capital created being 17,392,829*l*., and the sum received being 15,000,000*l*., it is obvious that the nominal capital created is 2,392,829*l*.

In the case of the loan in 3½ per cents., the capital created in consideration of the same sum of 15,000,000*l*. being 15,826,193*l*., the nominal capital is 826,193*l*.

And, therefore, the difference in nominal capital is 1,566,636*l*.

Now, as long as there is no rise in the price of stock, the nominal capital is of no consequence; but when this rise takes place, and that it becomes possible to reduce the 3½ per cents., while the 3 per cents., by reason of the large nominal capital that has been created, still remain without reduction, the case is altered; and then the gain on the 3½ per cents. will be the present value of the difference in nominal capital to be received at the period of reduction, *minus* the present value of the difference in annual charge up to the period of the reduction.

And so that, supposing the reduction to be 3 per cent. to take place at the end of 5 years, it will stand thus:—

Present value of 1,566,636*l*. to be received at the end of 5 years, and which, interest being 3½ per cent., and half-yearly payments, is £1,317,114

Deduct the present value of an annuity of 32,132*l*. for 5 years, and which, at the same rate of interest, is 146,220

£1,170,894

And, therefore, the result is the same as by the former mode of computation.

And now take this observation:—all the different gains which have been enumerated, as resulting from the reduction of the 3½ per cents. at the several and respective periods when such reduction is accomplished, are gains in present value—that is, gains which have retrospect, and travel back to the period of the contract for the loan. But the real gain, which accrues at the period when the reduction is actually accomplished, is the value of a perpetual annuity of 46,999*l.*, *minus* the sum to which an annuity of 32,132*l.* will increase at compound interest during the period that intervenes between the contract for the loan and the reduction.

And, therefore, upon the supposition that this reduction should take place at the end of 5 years, it will stand thus:—

The value of a perpetual annuity of 46,999*l.*, at 3 per cent., is	£1,566,633
Deduct the sum to which 32,132*l.* per annum will increase in 5 years at 3½ per cent. . .	173,921
	£1,392,712

And, therefore, the gain is 1,392,712*l.*, and for this the gain of 1,170,894*l.* in present value (as before stated) is an equivalent: it being under the related circumstances demonstrable, that 1,170,894*l.* actually received in 1835, is of precisely the same value as 1,392,712*l.* which is only to be received 5 years afterwards.

In like manner, if the reduction should take place at the end of 6 years, the gain is 1,354,159*l.*, and for which the sum of 1,099,656*l.* in present value is an equivalent.

If in 7 years, the gain is 1,314,246*l.*, and for which the sum of 1,030,849*l.* in present value is an equivalent.

If in 8 years, the gain is 1,272,901*l.*, and for which the sum of 964,371*l.* in present value is an equivalent.

If in 9 years, the gain is 1,230,127*l.*, and for which the sum of 900,190*l.* in present value is an equivalent.

If in 10 years, the gain is 1,185,843*l.*, and for which the sum of 838,189*l.* in present value is an equivalent.

If in 15 years, the gain will be 939,786*l.*, and for which the sum of 558,466*l.* in present value is an equivalent.

If in 20 years, the gain will be 647,112*l.*, and for which the sum of 323,928*l.* in present value is an equivalent.

If in 25 years, the gain will be 298,990*l.*, and for which the sum of 125,585*l.* in present value is an equivalent.

But if the reduction should be delayed till the end of 30 years, there will be a loss of 115,072*l.*, and for this the sum of 40,631*l.* in present value is an equivalent.

All which is to be noted, inasmuch as this should seem to be the true way of stating the matter: for as there can be no gain unless and until there be a reduction, so is it sufficiently plain and certain that the real gain must be that which accrues when the reduction is actually accomplished; and to set down this gain in present value is merely to denote the equivalency of the real fact in another fact, and so as to make the date of the gain coeval with the date of the contract.

And now it falls to be remarked, that all the preceding calculations are grounded on the supposition that in every case the reduction takes place at par; but as, when the 5 per cents. were reduced in 1822, this was not accomplished at par, but a *bonus* was given of 5 per cent., so in like manner, if it be judged expedient, may the 3½ per cents. be reduced to 3 per cents. by means of a *bonus*.

And therefore if we suppose this reduction to take place at the end of 5 years at the price of 94 per cent., the following will be the state of things:—

Capital	£15,826,193
Add the sum to which an annuity of 32,132*l.* increases in 5 years at 3½ per cent.	173,921
	£16,000,114
Which, at the price of 94 per cent., will purchase a capital in 3 per cents. of	£17,021,398
Capital of the present loan	17,392,829
Gain	£ 371,431

And therefore the gain in capital is 371,431*l.*, and the gain in annual charge issuing out of that capital is 11,143*l.*

If the reduction should be effected at 95 per cent., the gain in capital will be 550,604*l.*, and in annual charge 16,518*l.*

If at 96 per, cent., the gain in capital will be 726,044*l.*, and in annual charge 21,781*l.*

If at 97 per cent., the gain in capital will be 897,866*l.*, and in annual charge 26,936*l.*

If at 98 per cent., the gain in capital will be 1,065,182*l.*, and in annual charge 31,985*l.*

And if at 99 per cent., the gain in capital will be 1,231,098*l.*, and in annual charge 36,933*l.*

And now from all this it results :—

That a reduction in 5 years, at 94 per cent., is rather more advantageous than a reduction in 24 years at par.

That a reduction in 5 years, at 95 per cent., is rather less advantageous than a reduction in 21 years at par.

That a reduction in 5 years, at 96 per cent., is less advantageous than a reduction in 18 years at par.

That a reduction in 5 years, at 97 per cent., is less advantageous than a reduction in 15 years at par.

That a reduction in 5 years, at 98 per cent., is less advantageous than a reduction in 12 years at par.

And that a reduction in 5 years, at 99 per cent., is less advantageous than a reduction in 8 years at par.

It will be seen that Mr. Hume takes the rate of interest at 3½ per cent. before the reduction, and 3 per cent. afterwards, and this, to all appearance, on the following grounds :—

1st. It is clear that the rate of interest cannot be the same at these two different periods.

2nd. It is equally clear that the rate of interest at the period of the reduction must be lower than at the period of the loan, as otherwise there could be no reduction.

3rd. When the reduction takes place at par, it is so clear that the rate of interest is 3 per cent., that there is not the least room for remark, or doubt, or hesitation.

And therefore the only question to determine is whether the rate of interest should be taken at 3½ per cent. previous to the reduction ?

And here we have doubts, and we conceive that in this particular Mr. Hume has barely done himself justice : for he has taken his rate of interest from the 3½ per cents., and because it was probable that previous to the reduction money might be laid out in this stock at a mean rate of interest of 3½ per cent., he concluded that this was the interest which ought to be taken in his Resolutions. But the loss or gain on the present occasion results from the real rate of interest, which is not to be collected from the price of a stock which is obnoxious to reduction, and is only to be found in the price of that stock which is the farthest removed from reduction, and this is the 3 per cents.

Mr. Hume ought, therefore, to have framed his Resolutions upon this principle ; and then, from the circumstance of that gradual rise in the 3 per cents. to par, by means of which the 3½ per cents. are reduced, it will probably appear that the mean rate of interest previous to the reduction cannot be taken at more than 3¼ per cent.; and then if the reduction should take place at the end of 5 years we shall have the following state of things:—

The gain by the reduction of the 3½ per cents. is a perpetual annuity of 46,999*l.* deferred for 5 years, and the rate of interest being 3¼ per cent. during 5 years and 3 per cent. for ever after, the present value of this annuity is £1,333,405

The loss to be deducted from this gain is the present value of an annuity of 32,132*l.* for 5 years, and which at 3¼ per cent. is 147,186

Net gain in present value £1,186,219

If the reduction should be accomplished in 10 years, the gain, upon the same principle, will be £862,439
If in 15 years, the gain will be . . . 586,860
If in 20 „ „ . . . 352,306
If in 25 „ „ . . . 152,673

But if the reduction should be deferred to 30 years, there will be a loss of 17,242*l.*

And therefore, though the difference is not considerable, yet it always appears that in this particular of the rate of interest Mr. Hume has rather underrated his case.

But there is another view to be taken of the matter, and that is the comparative results of the two loans, in case it should be determined to redeem them by the operations of a sinking fund. And then we must take into consideration, that, up to the period of the reduction of the 3½ per cents., there are two concurrent different rates of interest; and that, while the 3 per cents. can only be redeemed at 3¼ per cent., the 3½ per cents. may be redeemed at par, or 3½ per cent. Or, in other words, these are the rates according to which these stocks may be purchased by the sinking fund in open market. After the reduction of the 3½ per cents., the two stocks become one, and are, of course, at the same price, and yield the same rate of interest.

With respect to the redemption of public debts, we would now make these two general observations.

1. That the cost of redeeming a debt relies solely on the value of the annuity, at the particular rate or rates of interest at which it is redeemed; and so that, given the rate or rates of interest, and all other things being equal, whether the period in which a debt is re-

deemed be longer or shorter, comes in the main all to one. For as to redeem a debt, in a short period of time, requires more capital than if the period were longer, so is it evident that, whatever is gained in time, by the prompt discharge of a debt, is lost in capital; and that, contrarywise, whatever is lost in time by the slow discharge of a debt, is gained in capital. And, therefore, whether a greater, or a less amount of capital be appropriated to the extinction of the debt, yet, in the final result and ultimate issue of things, the cost of redemption is precisely the same in both cases.

2. That where a debt is redeemed at several rates of interest, it is requisite that the annuity or capital, by means of which the debt is redeemed, should increase at compound interest, to that particular sum which is the value of the debt at the last rate of interest.

Thus, supposing the rate of interest to be 3 per cent., during the first 20 years, then 3½ per cent. for 20 years, and, successively, 4 per cent. for 30 years, 5 per cent. for 20 years, and 3¼ per cent. for 10 years, and it were then required to determine the amount of annuity or capital, that would redeem a perpetual annuity of 521,785*l*. in 100 years.

We first find that, at these various rates of interest, the present value of the annuity to be redeemed is 15,466,550*l*.

We then find, that an annuity of 12,561*l*. will redeem the perpetuity in 100 years, and that the present value of this annuity of 12,561*l*., at the several enumerated rates of interest, is 363,576*l*.

But we also find that this capital of 363,576*l*. will increase in 100 years, not to 15,466,550*l*., which is the value of the perpetuity at the different rates of interest, but to 16,054,923*l*., which is the value of the same perpetuity, at the last rate of interest of 3¼ per cent.

These two things are, therefore, to be noted, and they hold universally where the annuity is simple and absolute; but if the annuity issues out of stock of a certain denomination, and so that the question becomes complicated with nominal capital, then another and a different state of things obtains, and the mode of calculation must be varied accordingly.

All this laid down, we come now to treat of the redemption of the two debts respectively by means of the operation of a sinking fund, and this upon the usual supposition, that the 3½ per cents. shall be reduced to 3 per cents. at the end of 5 years.

By what has been stated, it appears that the rate of interest, at which purchases may be made in the 3 per cents., during the 5 years previous to the reduction, is 3¼ per cent., and that the rate for the 3½ per cents. is 3½ per cent.

If we then suppose a capital of 500,000*l.* to be employed in the redemption of each debt respectively, the matter of the 3 per cents. will stand this way:—

The rate of interest being 3¼ per cent. during 5 years, and afterwards 3 per cent., the present value of a perpetual annuity of 521,785*l.* is 17,193,654*l.*

The present value of the same annuity at the last rate of interest of 3 per cent. is 17,392,833*l.*

At 3¼ per cent. the 500,000*l.* will increase in 5 years to 584,755*l.*, and, which is equivalent at this rate of interest, to a capital of 636,410*l.* in 3 per cent. stock, and which increasing at 3 per cent. compound interest will redeem the perpetual annuity of 521,785*l.* in 111 years 33 days, to which adding 5 years for the period of the first increase, and the entire period occupied in the discharge, will be 116 years 33 days.

And so that, by means of the outlay of 500,000*l.*, the perpetual annuity of 521,785*l.* is converted into an annuity for the same amount terminating in 116 years 33 days; and the 500,000*l.* being equivalent in value to an annuity of 15,667*l.* ending in the same period, so does it follow, that the value of the perpetual annuity of 521,785*l.* is equivalent to an annuity of 537,452*l.* terminating in 116 years 33 days.

Now, the rate of interest being 3¼ per cent. during 5 years, and 3 per cent. afterwards, the present value of 1*l.* per annum for 116 years 33 days is 31·913503 years' purchase, and, therefore, the value of 537,452*l.* for the same period is 17,151,987*l.*, and this is the cost of redeeming the debt under the related circumstances.

But we have seen that the value of the perpetual annuity, if simple and absolute, is 17,193,654*l.*, and, therefore, 41,667*l.* is gained in the redemption, in consequence of the annuity issuing out of a 3 per cent. stock.

We proceed now to the redemption of the debt in 3½ per cents., which consists in an annuity of 553,917*l.* for 5 years, and in a perpetual annuity of 474,786*l.* deferred for 5 years, and the rate of interest as resulting from the price of the 3 per cent. stock, being 3¼ per cent. during 5 years, and 3 per cent. afterwards, the present value of these two annuities, if simple and absolute, would be 16,007,435*l.*; but as, from the circumstance of the greater liability of this debt to a reduction, the purchases of the sinking fund may be made during 5 years at 3½ per cent., so will this make no difference in the cost of redemption.

Under the related circumstances, we find that by means of the outlay of a capital of 500,000*l*. this debt will be redeemed in 115 years 72 days, and the cost of redeeming the debt will stand in the following particulars.

The present value of an annuity of 553,917*l*. for 5 years, and which at 3¼ per cent. is	£ 2,537,313
The present value of a perpetual annuity of 474,786*l*. deferred for 5 years, and which at 3¼ per cent. during 5 years and 3 per cent. for ever after is .	12,963,937
Capital appropriated to the redemption .	500,000
	£16,001,250

And the value of the annuities constituting the debt being, if simple and absolute, 16,007,435*l*., the gain which results from the employment of 500,000*l*. during 5 years at 3½ per cent. while interest is only 3¼ per cent. is 6,185*l*.

And now to comparative results:—

The cost of redeeming the 3 per cents. is .	£17,151,987
And the cost of redeeming the 3½ per cents. being	16,001,250
The difference is	£ 1,150,737

in favour of the 3½ per cents.

Let us now suppose that these debts shall be redeemed by means of the annuity that is in favour of each debt respectively as compared with the other; and so that the debt in 3 per cents. shall be redeemed by means of the annuity of 32,132*l*., which is in its favour up to the reduction of the 3½ per cents.; and that the debt in 3½ per cents. shall be reduced by means of the perpetual annuity of 46,999*l*., which is in its favour after the reduction.

And then as regards the redemption of the three per cents. it will be thus:—

The annnity of 32,132*l*. will increase in 5 years at 3¼ per cent. to 172,931*l*. and is equivalent at this rate of interest to a capital of 187,342*l*. in 3 per cent. stock, and which increasing at 3 per cent. compound interest will redeem the perpetual annuity of 521,785*l*. in 152 years 58 days, to which adding 5 years for the period of the first increase and the entire period occupied in the redemption will be 157 years 58 days.

And then the perpetual annuity of 521,785*l*. will be converted into an annuity of the same amount terminating in 157 years 58 days, with the addition of the annuity of 32,132*l.* for 5 years.

The rate of interest being 3½ per cent. during 5 years, and 3 per cent. afterwards, the present value of the annuity of 521,785*l.* for 157 years 58 days is	£17,034,201
And the present value of the annuity of 32,132*l.* for 5 years at 3½ per cent. is . . .	147,186
	£17,181,387

The annuity of 32,132*l.* for 5 years is equivalent to an annuity of 4,508*l.* for 157 years 58 days, and so that the perpetual annuity of 521,785*l.* is equivalent to an annuity of 526,293*l.* for 157 years 58 days.

Come we now to the redemption of the 3½ per cents., which is accomplished by means of the perpetual annuity of 46,999*l.* deferred for 5 years, the present value of which at 3½ per cent. is 1,333,405*l.*, and the rate of interest being 3½ per cent. during 5 years and 3 per cent. afterwards, the debt in 3½ per cents. will be redeemed in 85 years 155 days, at the end of which period the perpetual annuity of 46,999*l.*, by means of which the redemption is accomplished, will also be extinguished.

And therefore the debt stands in the following particulars:—

In an annuity of 553,917*l.* for 5 years, the present value of which at 3½ per cent. is	£ 2,537,313
In an annuity of 474,786*l.* + an annuity of 46,999*l.* = 521,785*l.* for 84 years 155 days deferred for 5 years, the present value of which at 3½ per cent. during 5 years and 3 per cent. for the remainder of the period is	13,457,629
	£15,994,942

And therefore the debt in 3½ per cents. is redeemed at a cost of 15,994,942*l.*, and the cost of redeeming the 3 per cents. being 17,181,387*l.*, the difference in favour of the 3½ per cents. is 1,186,445*l.*

And it must be observed that the annuity or annual charge during the continuance of the respective debts is in each case precisely the same: for with addition of the 32,132*l.* appropriated to the redemption, the annual charge on the 3 per cents. during 5 years is 553,917*l.*, and this is also the charge during the same period on the 3½ per cents.

After the 5 years, and up to the period that the debt is extinguished, the annual charge on the 3½ per cents. is 521,785*l.*, and this is also the annual charge on the 3 per cents. up to the period of extinction.

And the debt in 3½ per cents. being redeemed in 85 years 155 days, while the redemption of the 3 per cents. is only accomplished in 157 years 58 days, the difference between the two debts resolves itself into an annuity of 521,785*l.* for 71 years 268 days deferred for 85 years 155 days.

This is, then, the entire state of the matter upon the supposition of a reduction of the 3½ per cents. to 3 per cents. at the end of 5 years; and as it is not impossible that after this reduction there may also be a further reduction to 2½ per cents., so will it not be amiss that we consider the comparative state of things, if after the reduction to 3 per cent. at the end of 5 years, there should be a further reduction to 2½ per cent. at the end of the 10 following years.

By the reduction to 3 per cent., there is the gain of an annuity of 32,132*l.* for 5 years in favour of the 3 per cents., the present value of which is 147,186*l.*; and on the other side, the gain in favour of the 3½ per cents. is a perpetual annuity of 46,999*l.* deferred for 5 years, the present value of which is 1,333,405*l.*; and therefore the gain upon balance in favour of the 3½ per cents. is 1,186,219*l.*

When there is a further reduction of the original 3½ per cents. to 2½ per cent. there will be the same reduction of the 3 per cents., and the capital of this stock being 17,392,829*l.*, the annual charge at 2½ per cent. is 434,821*l.* And the capital of the 3½ per cents. being 15,826,193*l.*, the annual charge at 2½ per cent. is 395,655*l.*

And therefore, in these circumstances, the gain of the 3½ per cents. is a capital of 1,566,636*l.* (yielding an annuity of 39,166*l.* for ever) to be received at the end of 15 years, with the addition of an annuity of 46,999*l.* for 10 years, deferred for 5 years, and *minus* an annuity of 32,132*l.* for 5 years.

And now we have to settle the rates of interest at which these items are to be brought to account.

The rate of interest during the first five years has already been settled at 3¼ per cent. The rate at the end of 5 years is evidently 3 per cent., and the rate at the end of the following 10 years is as manifestly 2½ per cent., and therefore we have only to settle the rate during these 10 years, and which we shall put down at 2¾ per cent.; for as the prior reduction to 3 per cent. was preceded by that gradual rise in government securities which caused the mean rate of interest during the period previous to the reduction to be 3¼ per cent., so must the like cause produce the like effect, and occasion the mean rate of interest to be 2¾ per cent. during the 10 years preceding the reduction to 2½ per cent. The following will then be the position of things :—

The rate of interest being 2¾ per cent. during 10 years, and 3¼ per cent. during 5 years, the present value of 1,566,636*l*., to be received at the end of 15 years, is . . .	£1,014,721
At the same rate of interest, the present value of an annuity of 46,999*l*. for 10 years, deferred for 5 years, is	347,658
	£1,362,379
Deduct the present value of an annuity of 32,132*l*. for 5 years, at 3¼ per cent.	147,186
	£1,215,193

And therefore the gain in favour of the 3½ per cents. under the related circumstances is 1,215,193*l*. in present value.

Having thus given our opinion as to the rates of interest at which the differences resulting from the two loans ought to be computed, we shall now merely observe that in all our calculations in the body of the work we shall adhere to the principle contained in Mr. Hume's Resolutions, and take the rate of interest at 3½ per cent. before and 3 per cent. after the reduction. The public will then have the option of two sets of calculations, and the difference not being considerable, they may take which they like best. But we repeat that, in our humble judgment, the true principle is the one which we have laid down in the present note.

And now it will perhaps be urged, that in reducing the Long Annuity to a perpetuity we consider it as actually so much 3 per cent. stock, whereas, it is only so in equivalency, and not in real fact. But this makes no difference in the result: for the terminable annuity being irredeemable, and therefore not subject to a reduction of interest, there must be the same loss on it as on the 3 per cents., and indeed the matter is still worse: for the Long Annuity being irredeemable from its very nature, there can be no reduction of interest under any circumstances whatever: whereas the only obstacle to the reduction of the 3 per cents. being in the nominal capital, if this stock should rise above par, there might be a reduction of interest, and the interest on the Long Annuity still continuing the same, the loss would be greater on the Long Annuity than on the 3 per cents. In a word, if the 3 per cents. should be reduced to 2½ per cents. at the end of 15 years, according to the supposition we have made the comparative gain on the 3½ per cents., by severing the Long Annuity from the mass and considering it as a terminable annuity, is much greater than by reducing it to a perpetuity and converting it into 3 per cent. stock.

For the gain on the amount of 3½ per cent. stock, which is equal in value to the Long Annuity, as compared with the said Long Annuity when considered by itself, is . . . £ 388,759

And the gain on the remainder of the 3½ per cents., as compared with the remainder of the loan, is . 1,078,980

£1,467,739

And therefore the total gain, when the component parts of the loan are brought separately to account, is 1,467,739*l.*; whereas, when the Long Annuity is reduced to a perpetuity, and the whole loan considered as so much 3 per cent. stock, the loss is only 1,215,193*l.* And therefore it is manifest that, under the related circumstances, the loss on the Long Annuity exceeds the loss on an equal value in 3 per cent. stock, by 252,546*l.*

But this point of the Long Annuity, considered separately from the stock, we have discussed more fully in Note (4), to which we therefore refer.

And now take note that all the preceding calculations are upon the principle of half-yearly payments, and which is no doubt the true principle, though it makes less difference than is perhaps generally imagined. In the value of a perpetual annuity it makes no difference whatever, whether the interest be paid yearly, or half-yearly, or quarterly, or monthly, or daily, or hourly, or even every moment. In terminable annuities, the difference between yearly and half-yearly payments will be according to the rate of interest and the number of years the annuity has to run, and the following seems to be the principle by which the thing is governed.

The difference between yearly and half-yearly payments continues to increase, but in a diminishing ratio, till the annuity reaches the period that represents the number of years' purchase, which is equivalent to the value of the perpetuity, at that particular rate of interest at which the calculation is made.

Thus, the rate of interest being 5 per cent., 1*l.* per annum in perpetuity is worth 20 years' purchase; and, therefore, at this rate of interest, the difference between yearly and half-yearly payments will continue to increase, but in a diminishing proportion, till the annuity reaches 20 years, and then the increase will cease, and there will afterwards be a diminution, which will continue till, at length, the difference between yearly and half-yearly payments will vanish and be lost altogether in the perpetuity.

But the difference will always be something, however small, till we come to the perpetuity, as we may see from the following particulars.

The rate of interest being 5 per cent., the difference between yearly and half-yearly payments, in the value of an annuity of 1*l.* for 5 years, is . . . . . . ·0466

For 10 years	·0728
,, 15 ,,	·0854
,, 20 ,,	·0888
,, 25 ,,	·0871
,, 30 ,,	·0816
,, 40 ,,	·0665
,, 50 ,,	·0511
,, 100 ,,	·0088
,, 500 ,,	·00000001309

And, therefore, the difference for 5 years is about 11*d.*, for 20 years it is about 1*s.* 9*d.*, for 50 years it is about 1*s.*, for 100 years it is about 2*d.*, and for 500 years it is about the eighty-thousandth part of a farthing.

These three things are also to be noted:—

1. That the lower the rate of interest, the less will be the difference in the beginning between yearly and half-yearly payments, as may be seen from the following differences, at various rates of interest, on an annuity of 1*l.* for 5 years:—

5 per cent.	·0466
4 ,,	·0394
3½ ,,	·0355
3 ,,	·0314

2. That when several annuities at different rates of interest arrive at what may be called their maturity, that is to a period which corresponds to the number of years' purchase, that is the value of the perpetuity, the difference between yearly and half-yearly payments is in all so nearly alike, that it is not worth calculating, as may be seen from the following examples at various rates of interest, and for annuities for various terms of years corresponding to the value of the perpetuities at the several and respective rates of interest:—

5 per cent.	20 years	·0888
4 ,,	25 ,,	·0895
3½ ,,	28⁴⁄₇ ,,	·0900
3 ,,	33⅓ ,,	·0902

3. That after all the annuities have passed maturity, the greatest difference between yearly and half-yearly payments is in the annuity at the lowest rate of interest, as will be seen by examples taken from two periods of 50 and 100 years.

50 years.

5 per cent.	·0511
4 „	·0669
3½ „	·0761
3 „	·0826

100 years.

5 per cent.	·0088
4 „	·0187
3½ „	·0267
3 „	·0374

Note (2), referred to at page 91.

If the loan had been in a 4 per cent. stock at par, with a guarantee against a reduction of interest for 5 years, and that there should then be a reduction to 3½ per cent., the advantage would have been still greater than if the money had been borrowed in a 3½ per cent. stock, according to Mr. Hume's Resolutions, as will appear from the following statement:—

At the price of 100 per cent., the capital produced by 15,000,000*l.* of money would be the same in stock, say . £15,000,000

Annual charge at 4 per cent. £600,000

But when reduced to 3½ per cent., the annual charge will be £525,000

The annual charge on the loan in 3½ per cents. previous to the reduction to 3 per cent., is £553,917

And, therefore, it appears that, before the reduction of the 4 per cents. to 3½ per cents., the annual charge is 46,083*l.* less on the 3½ per cents. than on the 4 per cents.; but that, after the reduction, the charge is 28,917*l.* less on the 4 per cents. than on the 3½ per cents.

And, therefore, supposing the 4 per cents. to be reduced to 3½ per cents. at the end of 5 years, the gain on the 4 per cents., by comparison with the 3½ per cents., is the present value of a perpetual annuity of 28,917*l.* deferred for 5 years, and which, interest being 3½ per cent., is £757,295

Minus the present value of an annuity of 46,083*l.* for 5 years, and which, interest being 3½ per cent., is 221,111

£536,184

And, therefore, the clear gain in present value under the related circumstances, is 536,184*l.*

If the reduction should take place at the end of 6 years, the gain in present value is £483,892

If at the end of 7 years, it is . . . 423,558

„ 8 365,130

„ 9 . . . 308,571

And if at the end of 10 years . . . 253,799

Further, if the 3½ per cents. should be reduced to 3 per cents. at the end of 5 years from the date of the present loan, then (the guarantee being expired) the 4 per cents. would at once and without previous reduction to 3½ per cent. be reduced to 3 per cents., and we should have the following position of things:—

Charge on the 3½ per cents. after their reduction to 3 per cents. £474,786

Charge on the 4 per cents. after their reduction to 3 per cents. 450,000

Difference . . . £ 24,786

And, therefore, the gain on the 4 per cents. as compared with the 3½ per cents. is the present value of a perpetual annuity of 24,786*l.* deferred for 5 years, and which, interest being 3½ per cent. during the deferred period, and 3 per cent. for ever after, is £703,202

Less the present value of an annuity of 46,083*l.* for 5 years, and which, interest being 3½ per cent., is 221,111

£482,091

And, therefore, the clear gain in present value, under the related circumstances, is 482,091*l*.

If the 4 per cents. should be reduced to 3½ per cents. at the end of 5 years, and to 3 per cents. at the end of the following 5 years, the matter would have to be represented after the following fashion:—

The gain at the end of 5 years by the reduction to 3½ per cent. is an annuity of 28,917*l*. for 5 years deferred for 5 years, the present value of which at 3½ per cent. is . .	£112,740
Plus the present value of a perpetual annuity of 24,786*l*. deferred for 10 years, and which, interest being 3½ per cent. during the deferred period, and 3 per cent. for ever after, is	598,515
	£711,255
Minus the present value of an annuity of 46,083*l*. for 5 years at 3½ per cent., which is . .	221,111
	£490,144

And, therefore, under the related circumstances, the gain in present value is 490,144*l*.

This, as regards a comparison between a loan in 4 per cents., and a loan in 3½ per cents. according to Mr. Hume's Resolutions.

And now, if we would make a direct comparison between a loan in 4 per cents. at par, and the present loan, we must set things forth after the following manner:—

The annual charge on the present loan, after the reduction of the Long Annuity to a perpetuity, is 521,785*l*.

The charge on the 4 per cents. previous to all reduction is 600,000*l*.

The charge after their reduction to 3½ per cents. is 525,000*l*.

And the charge after their reduction to 3 per cents. is 450,000*l*.

And so that, previous to all reduction, the charge on the 4 per cents. exceeds the charge on the present loan by 78,215*l*.

After the reduction to 3½ per cents., the charge is still 3,215*l*. more than on the present loan.

But after the reduction to 3 per cent., the charge on the present loan exceeds the charge on the 4 per cents. by 71,785*l*.

And, therefore, supposing the 4 per cents. should be reduced to 3½ per cents. at the end of 5 years, and to 3 per cents. at the end of the following 5 years, the gain on the 4 per cents. by comparison with the present loan, is the present value of a perpetual annuity of

71,785*l*. deferred for 10 years, *minus* the present value of an annuity of 78,215*l*, for 5 years, and *minus* also the present value of a second annuity of 3,215*l*. for 5 years, deferred for 5 years.

Now the rate of interest being 3½ per cent. during 10 years, and 3 per cent. for ever after, the present value of a perpetual annuity of 71,785*l*. deferred for 10 years, is . . . £1,733,411

Deduct

The present value of an annuity of 78,215*l*. for 5 years, which, interest being 3½ per cent. is	£358,277	
Also the present value of an annuity of 3,215*l*. for 5 years deferred for 5 years, and which, interest being 3½ per cent., is .	12,535	
		370,812
		£1,362,599

And so that, under the related circumstances, there is a clear gain of 1,362,599*l*. in present value.

If there should be a reduction of the 4 per cents. to 3 per cents. at the end of 5 years, the gain in favour of the 4 per cents. by comparison with the present loan would be a perpetual annuity of 71,785*l*. deferred for 5 years, the present value of which at 3½ per cent. during 5 years, and 3 per cent. for ever after, is . . £2,036,607

Minus the present value of an annuity of 78,215*l*. for 5 years, and which, interest being 3½ per cent., is 358,277

£1,678,330

And therefore under the related circumstances there is a clear gain of 1,678,330*l*. in present value.

And now, that no material combination may be omitted, let us suppose that after the reduction of the 4 per cents. to 3½ per cents. at the end of 5 years, and to 3 per cents. at the end of 5 following years, there shall be a further reduction to 2½ per cent. at the end of the 10 following years. We shall then, according to the principle laid down in Note (4), have to sever the Long Annuity from the stock of the present loan, and then consider and compare each part separately.

As regards the Long Annuity, the following will then be the state of the comparison :—

The value of the Long Annuity is 1,681,320*l*., and the annual charge 58,486*l*.

The annual charge on a capital of 1,681,320*l*. of 4 per cent. stock is 67,253*l*.

The charge when reduced to 3½ per cents. is 58,846*l*.

The charge when reduced to 3 per cents. is 50,440*l*.

And the charge when reduced to 2½ per cent. is 42,033*l*.

And therefore, previous to the reduction to 3½ per cent., the gain in favour of the Long Annuity is an annuity of 8,767*l*. for 5 years.

After the reduction to 3½ per cents. there is still a gain in favour of the Long Annuity of an annuity of 360*l*. for 5 years deferred for 5 years.

But after the reduction to 3 per cents. the gain in favour of the 4 per cents. is an annuity of 8,046*l*. for 10 years deferred for 10 years.

And after the reduction to 2½ per cent. the gain in favour of the 4 per cents. is a perpetual annuity of 16,453*l*. deferred for 20 years.

And when all these things are reduced into present value the matter will stand thus :—

The rate of interest being 3¼ per cent. during ten years, and 2¾ per cent. during 10 years, and 2½ per cent. for ever after, the present value of a perpetual annuity of 16,453*l*. deferred for 20 years is		£362,810
At 3¼ per cent. during 10 years, and 2¾ per cent. during 10 years, the present value of an annuity of 8,046*l*. for 10 years deferred for 10 years is		50,656
		£413,466
Deduct the present value of an annuity of 8,767*l*. for 5 years at 3¼ per cent. . . .	£40,159	
Plus the present value of an annuity of 360*l*. for 5 years deferred for 5 years at 3¼ per cent.	1,409	
		41,503
		£371,903

And therefore, under the related circumstances, the gain on so much of the loan in 4 per cents. as is equivalent in value to the Long Annuity is 371,903*l*. in present value.

Let us now compare the remainder of the loan in 4 per cents. with he remainder of the present loan, which consists entirely of 3 per cent. stock.

The remaining capital of the 4 per cents. is .	£13,318,680
And the annual charge at 4 per cent. . . .	£532,747

After the reduction to 3½ per cent. the charge is . £466,154
After the reduction to 3 per cent. the charge is . £399,560
And after the reduction to 2½ per cent. the charge is £332,967
On the other hand, the capital in 3 per cent. stock is £15,443,284
On which the annual charge at 3 per cent. is . . £463,299
And after the reduction to 2½ per cent. the annual charge is £386,082

And so that previous to the reduction to 3½ per cent., the gain in favour of the present loan is an annuity of 69,448*l*. for 5 years.

After the reduction to 3½ per cent., there is still a gain in favour of the present loan of an annuity of 2,855*l*. for 5 years, deferred for 5 years.

But after the reduction to 3 per cent., the gain in favour of the 4 per cents. is an annuity of 63,739*l*. for 10 years, deferred for 10 years.

And after the reduction to 2½ per cent., the gain in favour of the 4 per cents. is a perpetual annuity of 53,115*l*. deferred for 20 years.

And now, when reduced into present value, the whole matter will stand thus:—

The rate of interest being 3¼ per cent. during 10 years, 2¾ per cent. during 10 years, and 2½ per cent. for ever after, the present value of a perpetual annuity of 53,115*l*. deferred for 20 years is		£1,171,254
At 3¼ per cent. during 10 years, and 2¾ per cent. during 10 years, the present value of an annuity of 63,739*l*. for 10 years, deferred for 10 years, is		401,294
		£1,572,548
Deduct the present value of an annuity of 69,448*l*. for 5 years, which, at 3¼ per cent., is	£318,119	
Plus the present value of an annuity of 2,855*l*. for 5 years, deferred for 5 years, which, at 3¼ per cent., is . . .	11,131	
		329,250
		£1,243,298

And, therefore, under the related circumstances, the gain on so much of the loan in 4 per cents. as is equivalent in value to the 3 per cent. stock of the present loan, is in present value £1,243,298

And the gain as compared with that part of the present loan which consists of Long Annuity being, as already shown 371,903

It follows that the total gain is 1,615,201*l*. in present value.

And, therefore, we see the benefit of funding in stock of a high denomination: for by what has been set forth it is manifest, not only that a funding in 4 per cents. would have been infinitely preferable to the operation of the present loan, but that it also is much more advantageous than a loan in 3½ per cents., according to Mr. Hume's Resolutions. For, setting aside the probability of a reduction to 3 per cent. at the end of 5 years, it is almost a certainty, that there would, at the end of that period, be at least a reduction to 3½ per cent., in which case, the gain in favour of a loan in 4 per cents., as compared with a loan in 3½ per cents., according to Mr. Hume's Resolutions, is 536,184*l*. in present value.

On a comparison with the present loan the case is infinitely stronger; for, supposing the 4 per cents. should be reduced to 3½ per cent. at the end of 5 years, if the reduction to 3 per cents. should not even take place till the end of the 45 following years (being 50 years from the date of the loan) there would still be a gain of 54,440*l*., and by a reduction to 2½ per cent., the gain would be still more considerable.

Seeing, therefore, the benefit of funding in stock of a high denomination, and that a loan in 4 per cent. stock at par would not only have been much more advantageous than the present loan, but that it would even have been preferable to a loan in 3½ per cents., according to Mr. Hume's Resolutions, the only remaining question is, whether, at the period of the present loan, money could have been borrowed in a 4 per cent. stock at par, with a guarantee that the interest should not be reduced during 5 years, and that this may be determined in the affirmative without much difficulty will appear from the following reasons:—

1. In the year 1829, Mr. Goulburn (the then Chancellor of the Exchequer) funded in a 4 per cent. stock at rather above par, and this although at the period of his operation the price of Consols was lower than at the period of the present loan.

2. In the year 1802, the French government borrowed money in a 4 per cent. stock at 102, and this without any guarantee whatever against a reduction of interest.

3. In the year 1834, the 4 per cent. stock created by Mr. Goulburn in 1829 was reduced to 3½ per cents. at par, and this without any guarantee against a further reduction of interest; and, therefore, to suppose that a man will accept 3½ per cents. at par, without any guarantee whatever, and yet refuse 4 per cents. at the same price with a guarantee for 5 years, is utterly inconsistent.

4. Upon general grounds, and from the state of the money-market as indicated by the price of stock at the period of the loan, it is ridiculous to suppose that the public would have refused to lend money to the government at 4 per cent. when accompanied with a guarantee, that the interest should not be disturbed during 5 years.

It being, therefore, divers ways, very apparent, that the money could have been borrowed in a 4 per cent. stock at par, and it having been shown, that this would have been infinitely more advantageous than the present loan, the only impediment to the operation is that section in the slave compensation act, which provides that the money is not to be borrowed in annuities of any other description or denomination than those which existed at the time of passing the act; and there being in 1835 no 4 per cent. stock whatever, it would have been necessary to apply to Parliament, in order to get rid of the objection. In this there was, however, no difficulty; and how so very singular a clause came to be inserted in the act passes our understanding to comprehend. By fettering the minister and abridging and limiting the different modes of raising the money, it was necessarily productive of disadvantage.

And here take this observation,—that the comparison between the Long Annuity and the 4 per cents. on the reduction of the latter to 2½ per cent. is made upon the principle mentioned in the introduction, and again laid down in Note (4), and which is this,—that the several reductions of the 4 per cents. to 3½ per cent., 3 per cent., and finally to 2½ per cent., proceed solely from a decline in the rate of interest on government securities, while interest on private securities remains unvaried; and then it follows that the loss on the Long Annuity derives from the privation of that profit which would have resulted from a loan to the same amount in 4 per cent. stock.

Note (3), referred to at page 149.

With respect to this operation of the funding of 3,000,000*l.* of Exchequer bills, Mr. Hume, on the 19th of May, 1829, moved the following Resolutions:—

"It is proposed, by a Bill now in the House, to authorise the converting of three millions of principal sum of unfunded debt, into 3,045,000*l.* of funded debt, by giving to the holder of every 100*l.* Exchequer bill 101*l.* 10*s.* capital stock in four per cent. Annuities, yielding an annuity of 4*l.* 1*s.* 2*d.* to the holder of every such 100*l.* Exchequer bill:

"That the Exchequer bills are to be deposited with the Governor and Company of the Bank of England, by five instalments of 20 per cent., or 600,000*l.* each, the first instalment on the date of subscription (the 8th of May), the second on the 19th of June, the third on the 21st of July, the 4th on the 11th of September, and the 5th instalment on the 23rd of October next:

"That interest is to be allowed on the whole of the Capital Stock of 3,045,000*l.* of 4 per cent., from the 5th of April, 1829, to the holders of the said Stock; and interest at the rate of 2*d.* per cent. per diem, or 3*l.* 0*s.* 10*d.* per cent. per annum, is also directed to be allowed on the first instalment of Exchequer bills to the 8th of May, and for the second and subsequent instalments in like manner to the respective days on which the bills are directed to be deposited:

"That, by these operations, the amount of 45,000*l.* of Capital Stock in four per cent. Annuities, and 27,950*l.* of interest on Exchequer bills, are to be given as a Bonus to the holders of the said bills:

"That, by the converting of these three millions of Exchequer bills into 4 per cent. annuities, a perpetual annuity of 121,800*l.*, being at the rate of 4*l.* 1*s.* 2*d.* per cent. will be created, whilst the Commissioners for the reduction of the National Debt are applying the Surplus revenue in the purchase of three per cent. stock, at the rate of 87½ per 100*l.* stock; and, at that rate of annuity of 3*l.* 8*s.* 7*d.* per cent., the three millions of money will redeem a perpetual annuity of only 102,857*l.*, thereby occasioning a loss of annuity of . . . . £18,943 in perpetuity.

Brought forward	£18,943
"To which loss, the bonus of interest of 27,950*l*. is to be added, being equal to 31,714*l*. 5*s*. 5*d*. of three per cent. stock, and equivalent to an annuity in perpetuity of	951
and making an ultimate loss, by the transaction, of a perpetual annuity to the amount of . .	£19,894

and equal to 663,133*l*. of three per cent. capital stock :

"That no circumstances in the state of public credit, or in the condition of the country, warrant so great and unnecessary an expense to the public as will be occasioned by the plan submitted for converting these three millions of unfunded into funded debt."

And now it will not be improper that we endeavour to ascertain the true state of the matter, and this being a singular transaction, and it plainly appearing, that there is a great present loss in annual charge, as stated in the Resolutions, it will be curious to see whether, from the circumstance that the funding took place in a 4 per cent. stock, which was reduced to 3½ per cent. in 1834, and may be farther reduced to 3 per cent., this loss will be recovered.

It appears from the terms of the funding, that 101*l*. 10*s*. 4 per cent. stock, was given for 100*l*. in Exchequer bills; that there was an accrued dividend on the stock from the 5th of April to the 8th of May ; and that the discount amounted to 14*s*. per cent.: and therefore the whole matter stood as follows :—

The amount of stock created was . . .		£3,045,000
Annual charge		£121,800
In consideration of which there was paid the gross sum of		£3,000,000
Deduct		
Accrued dividend . .	£10,508	
Discount .	21,000	
		31,508
Remains . .		£2,968,492

Which gives a rate of interest of 4*l*. 2*s*. 0$\frac{74}{100}$*d*. per cent., and the gross sum received in Exchequer bills being 3,000,000*l*., the capital in 4 per cent. stock which is equivalent to this sum is £3,077,313

And the annual charge	£123,093

Turn we now to the operations of the sinking fund subsequent to the funding, as they are to be found in the following statement.

An account of the amount of stock redeemed by the commissioners of the sinking fund in each of the four years subsequent to the 5th April, 1829, stating the amount of each kind of stock redeemed, and the rates at which each stock on the average of each year was redeemed (not including the stock redeemed by the conversion into terminable annuities), and the average of the whole amount redeemed in a 3 per cent. stock.

		Amount Redeemed.		Average price of each year.	
		3 per cent.	3½ per cent.	3 per cent.	3½ per cent.
		£.	£.	£. s. d.	£. s. d.
In the year ending the 5th April	1830	1,690,221	882,100	90 11 6	98 1 2
	1831	1,264,766	1,051,000	84 16 11	92 14 2
	1832	41,317	268,338	79 3 10	89 6 1
	1833	9,348	12,451	85 0 0	95 1 1
		3,005,652	2,213,889 3,005,652		
Total		. . . .	5,219,541		

The average of the whole amount redeemed in a 3 per cent. stock is—

Stock £5,381,860. . . Average 87*l.* 19*s.* 10*d.*

From this statement it appears that, in the year ending 5th April, 1830, there was purchased 1,690,221*l.* of 3 per cent. stock, the annuity of which amounted to £50,707

And in the same year there was purchased 882,100*l.* of 3½ per cent. stock, the annuity of which amounted to 30,873

Together . . . £81,580

And the prices at which the said stocks respectively were purchased being 90*l.* 11*s.* 6*d.* per cent. for the 3 per cents., and 98*l.* 1*s.* 2*d.* per cent. for the 3½ per cents., the total cost of the said purchases of stock in money was 2,395,890*l.*; and the amount of the funding being 3,000,000*l.*, there of course remained a sum of 604,110*l.* to be made up by the subsequent operations of the sinking fund; and then, as relating to this point, we find—

That, in the following year, ending 5th April, 1831, there was purchased by the sinking fund 1,264,766*l.* of 3 per cent. stock at the price of 84*l.* 16*s.* 11*d.* per cent. and 1,051,000*l.* of 3½ per cent. stock at the price of 92*l.* 14*s.* 2*d.* per cent. And therefore the sum paid in respect of the 3 per cent. stock was 1,073,101*l.*, and the sum paid in respect of the 3½ per cent. stock was 974,365*l.*, making together a sum of 2,047,466*l.*; and the proportion which the sum laid out in 3 per cents. bore to the whole sum laid out was 52·41 per cent., and the proportion which the sum laid out in 3½ per cents. bore to the whole sum was 47·59 per cent.: and 52·41 per cent. of 604,110*l.* being 316,614*l.*, and 47·59 per cent. of 604,110*l.* being 287,496*l.*, it follows that in the application of the aforesaid sum of 604,110*l.* there was 316,614*l.* laid out in the purchase of 3 per cent. stock at the price of 84*l.* 16*s.* 11*d.* per cent., and thereby a capital of 373,164*l.* and an annuity of 11,195*l.* in 3 per cent. stock was extinguished; and that the sum of 287,496*l.* was laid out in the purchase of 3½ per cent. stock, at the price of 92*l.* 14*s.* 2*d.* per cent., and thereby a capital of 310,108*l.* and an annuity of 10,854*l.* in 3½ per cent. stock was extinguished. And therefore the extinction of annual charge in the year ended April, 1831, by means of laying out 604,110*l.* in the purchase of stock, was 22,049*l.* and the extinction of annual charge in the year ended April, 1830, by means of an outlay of 2,395,890*l.*, being 81,580*l.*; this makes for the total extinction produced by the outlay of 3,000,000*l.* a sum of . . . £103,629

And the charge incurred by the funding of 3,000,000*l.* being 123,093

This makes a difference of £19,464

that the annual charge incurred by the funding of 3,000,000*l.* exceeds the annual charge extinguished by the operations of the sinking fund.

Now, taking the rate of interest at 3½ per cent., this difference of 19,464*l.* in annual charge was equivalent to the loss of a capital of 556,114*l.* in money, and the sum funded being 3,000,000*l.*, this is at the rate of 18·54 per cent. on the operation.

And therefore, if this had been the last and ultimate issue, and that the thing had for ever continued in the same state, this would have been a most improvident operation; but the 4 per cent. stock in which the funding took place having been reduced to 3½ per cents. in 1834, and the annual charge on the stock created being thereby reduced to 107,706*l.*, this changes the face of the matter, and so that the following will be the state of things.

Previous to the reduction to 3½ per cent., the loss on the 4 per cents. is an annuity of 19,464*l.*, and after this reduction there is still a loss in annuity of 4,077*l.*, and therefore, after the reduction in 1834, the loss on the 4 per cents. stands in the following particulars.

The present value of a perpetual annuity of 4,077*l.* deferred for 5 years, and which, interest being 3½ per cent., is .	£97,933
Plus the present value of an annuity of 19,464*l.* for 5 years, and which, at the same rate of interest, is .	88,573
	£186,506

And so that, after the reduction in 1834, the loss was diminished from 556,114*l.* to 186,506*l.* in present value. And this still continues to be the loss, and, things remaining as they are, and supposing there should be no farther reduction of the original 4 per cents., this will be the loss throughout all periods of time.

But if the 4 per cents should be further reduced to 3 per cent. in 1840, the charge will be brought down to 92,319*l.*, and there will also be a reduction of the charge on the stock purchased by the sinking fund from 103,629*l.* to 97,668*l.*, and this as arising out of the following circumstance.

The whole amount of stock purchased by the sinking fund is 3,254,593*l.*, but of this amount 1,192,208*l.* is in 3½ per cents.; and as, if this stock had not been purchased by the sinking fund, it would, by the supposition, be reduced to 3 per cent. in 1840, so is it evident that we must take the charge at that period as it would exist if no stock whatever had been purchased with the 3,000,000*l.*, but that the sum had been laid out in the purchase of Exchequer bills, according to Mr. Hume's Resolutions.

In short, if the money had been laid out in the purchase of Exchequer bills, the whole amount of 3,254,593*l.* purchased by the sinking fund would in 1840 become 3 per cent. stock, on which the annual charge would be 97,668*l.*, and this is the real charge extinguished by the operations of the sinking fund, and all beyond this charge would have been extinguished by the reduction of interest.

The charge extinguished by the operations of the sinking fund being therefore 97,668*l.*, and the charge incurred by funding in 4 per cents. being 92,319*l.*, it is evident that the gain by funding is a perpetual annuity of 5,349*l.*, and so that, after the reduction to 3 per cent. in 1840, the whole matter from the beginning will stand as follows.

Previous to the reduction to 3½ per cents. in 1834, the loss on the 4 per cents. is an annuity of 19,464*l.*

After this reduction there is still a loss in annuity of 4,077*l.*

But after the reduction to 3 per cent. in 1840 there is a gain on the 4 per cents. of a perpetual annuity of 5,349*l.*

When all these things are computed and brought into present value, the matter will stand thus:

The gain in favour of the 4 per cents. in 1840 is a perpetual annuity of 5,349*l.* deferred for 11 years, and, interest being 3½ per cent. during the deferred period, and 3 per cent. when it becomes active, the present value of this annuity is . . .		£121,729
Deduct the present value of an annuity of 19,464*l.* for 5 years at 3½ per cent., which is .	£88,573	
Plus the present value of an annuity of 4,077*l.* for 6 years deferred for 5 years, and which, at the same rate of interest, is .	18,405	
		106,978
		£14,751

And therefore, under the related circumstances, the gain in favour of the 4 per cents. is 14,751*l.* in present value.

It will be seen that in all the preceding calculations no allowance is made for a premium on the Exchequer bills funded; and, although according to the strict legality of the case the government probably has the power to pay off an Exchequer bill when due, without allowing anything for premium, yet, as this is a power which we believe seldom or never is exercised, and that, therefore, every man who buys an Exchequer bill does it upon the faith and understanding that he has the option either to receive the money or a new bill, and that consequently the government has no option (except perhaps in the case of bills held by the Bank of England) but either to fund or to buy up the bills in open market; so is it plainly reasonable that in all cases of funding the premium on the Exchequer bills should be taken into the account; and as at the period when this particular transaction took place, the premium on Exchequer bills was at least 50*s*. per cent., so will this present us with the following state of things.

The annual charge on the stock created was	£121,800

The gross sum in Exchequer bills received in consideration of this charge was	£3,000,000
Add premium	75,000
	3,075,000
Deduct accrued dividend and discount as before	31,508
	£3,043,492

The net sum of 3,043,492*l*. having therefore been received in consideration of an annual charge of 121,800*l*., this is a rate of interest of 4*l*. 0*s*. 0$\frac{47}{100}$*d*. per cent., and which for 3,000,000*l*. is equivalent to a capital in 4 per cent. stock of £3,001,469

Annual charge	£120,059
Charge extinguished by the operations of the sinking fund	103,629
Difference	£16,430

And, therefore, the original loss by funding these Exchequer bills at a premium of 50*s*. was a perpetual annuity of 16,430*l*., the value of which, at 3½ per cent. is 469,429*l*.

And, now, as all the calculations in the present case are governed by the same principle as in the preceding, we shall, in order to avoid repetition, omit the work in every instance, and merely set down the results, which are as follow :—

In the year 1834, when the reduction took place to 3½ per cent., the loss by the operation of funding was 108,924*l*. in present value.

If the 3½ per cents. should be reduced to 3 per cents. in 1840, there will be a gain on the operation of 92,400*l*. in present value.

And if the reduction to 3 per cent. should be deferred to 1845, the gain will be 60,265*l*. in present value.

It will be perceived that all the preceding calculations and comparisons have reference to the actual operations of the sinking fund subsequent to the funding in 1829, and which consisted in the purchase partly of 3 per cent. and partly of 3½ per cent. stock. It appears however that Mr. Hume's Resolutions are framed on the hypothesis that the operations of the sinking fund would be restricted solely to the purchase of 3 per cent. annuities. Wherefore it will not be improper that we examine how matters would have stood if this supposition had been realised, and that the operations of the sinking fund had been limited entirely to the purchase of 3 per cent. stock.

The sum expended in the year ending April, 1830, was 2,395,890*l.*, and the price of 3 per cent. stock during that period being 90*l.* 11*s.* 6*d.* per cent., there would have been redeemed a capital of	£2,645,200
The sum remaining to be expended in the year ending April, 1831, was 604,110*l.*, which, at the price of 84*l.* 16*s.* 11*d.* per cent., would have redeemed a capital of .	712,009
	3,357,209
Annual charge	100,716
The annual charge on the 4 per cents. by the first calculation, which leaves out the premium on the Exchequer bills, is	123,093
Difference . . .	£22,377

And therefore, supposing all the money laid out by the sinking fund to have been in 3 per cents., and that there had been no premium on the Exchequer bills, the loss in 1829 by the funding of 3,000,000*l.* of Exchequer bills was a perpetual annuity of 22,377*l.*, the value of which at 3½ per cent. is 639,343*l.* in money, and amounting to 21·31 per cent. on the sum funded, and to a capital of 745,900*l.* in 3 per cent. stock.

Now, this calculation is framed exactly in accordance with Mr. Hume's Resolutions, which suppose all the purchases of the sinking fund to be confined to 3 per cent. stock, and that there is no premium on the Exchequer bills.

And then it appears that Mr. Hume was within the mark, for he computed the loss at a perpetual annuity of 19,894*l.*, which is equivalent to a capital of 666,133*l.* in a 3 per cent. stock; whereas the loss is a perpetual annuity of 22,377*l.*, which is equivalent to a capital of 745,900*l.* in 3 per cent. stock.

Let us now see how the matter stood after the reduction to 3½ per cent. in 1834, when, the charge on the 4 per cents. being diminished to 107,706*l.*, the loss on the operation consisted in the present value of a perpetual annuity of 6,990*l.* deferred for 5 years, with the further addition of an annuity of 22,377*l.* for 5 years to commence immediately.

The value of the annuity of 6,990*l.* at 3½ per cent. is £167,906
And the value of the annuity of 22,377*l.* at the same
rate of interest is 101,829

£269,735

And, therefore, the loss in 1834 was 269,735*l.* in present value, and this is still, and will continue to be, the loss for ever, unless there be a further reduction of interest: but if the 3½ per cents. should be reduced to 3 per cent. in 1840, the following will be the position of things:—

The annual charge on the original 4 per cents. will be £92,319
And the charge extinguished by the sinking fund
being 100,716
there is a gain in favour of the 4 per cents. of a perpetual annuity of 8,397*l.*, and then everything will stand in the following order:—

At the period of the funding in 1829, and previous to the reduction in 1834, the loss on the 4 per cents. is an annuity of 22,377*l.*

After the reduction to 3½ per cent. in 1834, there is still a loss on the 4 per cents. of an annuity of 6,990*l.*

But after the reduction to 3 per cent. in 1840, there is a gain in favour of the 4 per cents. of an annuity of 8,397*l.*

This is therefore the final result:—The gain in favour of the 4 per cents. is a perpetual annuity of 8,397*l.* deferred for 11 years, *minus* an annuity of 22,377*l.* for 5 years, and *minus* also an annuity of 6,990*l.* for 6 years deferred for 5 years.

Now, the rate of interest being 3½ per cent. during 11 years, and 3 per cent. for ever after, the present value of a perpetual annuity of 8,397*l.* deferred for 11 years is £191,093
Deduct the present value of an annuity of 22,377*l.* for
5 years at 3½ per cent., which is . . . £101,829
And the present value of an annuity of 6,990*l.*
for 6 years deferred for 5 years, which at 3½ per
cent. is 31,556
—133,385

£57,708

And, therefore, under the related circumstances, the gain in favour of the 4 per cents. is 57,708*l.* in present value.

This is then the state of things upon the supposition that the operations of the sinking fund had been confined to the purchase of 3 per cent. annuities, and that there had been no premium on the Exchequer bills. But, if this premium is to be included, we shall have the following results:—

At the period of the funding in 1829 the loss on the 4 per cents. is a perpetual annuity of 19,343*l.*, which offers the following equivalents.

1. The rate of interest being 3½ per cent., this annuity is equivalent to a capital of 552,657*l.* in money.

2. It is equivalent to a loss of 18·42 per cent. on the amount of the funding.

3. It is equivalent to a capital of 644,767*l.* in 3 per cent. stock.

After the reduction in 1834, the loss on the 4 cents. is a perpetual annuity of 4,335*l.* with the addition of an annuity of 19,343*l.* for 5 years.

The present value of these two annuities is 192,152*l.*, which is equivalent to a loss of 6·40 per cent. on the amount of the funding.

But, if there should be a reduction to 3 per cent. in 1840, there will be a gain in favour of the 4 per cents. of 135,274*l.*, which is equivalent to 4·5 per cent. on the amount of the funding.

And, now, with respect to the preceding calculations, we would observe that they are correct according to the documents with which we have been furnished: but these documents are defective and inadequate in two respects.

1. They set forth in the gross all the operations of the sinking fund from April, 1829, to the same month in 1833: whereas, in order to square to this particular case, the return ought to have been confined to the purchases of stock to the extent of 3,000,000*l.* of money, and commencing immediately subsequent to the 8th of May, 1829, the date of the funding.

2. They do not specify the amount of accrued dividend on the stock purchased by the sinking fund.

The first of these points will be in favour of Mr. Hume; for, according to the return, the price of stock is much lower in the year ending 1831 than in the year ending 1830: but, as the price of stock only began to decline after the French revolution in July 1830, so is there no doubt that a return of purchases to the extent of 3,000,000*l.*, commencing immediately after the 8th of May, 1829, would show a higher average price than the average of the first two entire years of the present return.

The second point is in favour of Mr. Goulburn, for the accrued dividend goes to diminish the price of the stock, and for this credit ought to be allowed.

The two objections being, therefore, of a contrary nature and tendency, there is compensation: and, though the one may not exactly balance the other, yet we believe it may very safely be predicated that, were a perfect return to be made, it would affect the present results only to a very small and inconsiderable extent.

We have dwelt long and entered very fully into this operation, because it clearly establishes the advantage of borrowing and funding in stock of a high denomination, and shows how the adoption of a sound principle enables us to retrieve an enormous loss occasioned by a vice in the detail. For the rest, the operation we think is not to be commended, and it was hardly prudent to incur so heavy a loss at the outset, upon the probability, however great, of being able to retrieve this loss by a future reduction of interest.

This, then, as regards the funding of 3,000,000*l.* of Exchequer bills in 1829, during the administration of the duke of Wellington, and when Mr. Goulburn was Chancellor of the Exchequer, and which is not altogether deserving of the same approbation as the operation of the following year, when 150,000,000*l.* of 4 per cents. were reduced to 3½ per cent. The reduction of the 5 per cents. in 1822 was comparatively an easy operation, because it was impossible, in a period of peace, and after the return to cash payments, that the British government should be obliged to pay 5 per cent. for money, and yet this reduction was not accomplished without a *bonus*: whereas, the reduction of nearly the same amount of stock in 1830 to 3½ per cent. was effected without any *bonus* whatever. And so that, surveying the matter in all its various aspects, it may, we believe, be affirmed, that, as it was the largest, so was it also the best conducted, and the most successful measure of the kind, that had ever been accomplished in any age or nation; and it had one feature that is above all praise—there was no tampering or interference with the currency: whereas, to the eternal disgrace of the administration of that period, the reduction of the 4 per cents. in 1824 was brought about entirely by a series of jobbing transactions on the part of the government and the Bank of England. What followed in consequence is well known and deeply to be deplored.

This as regards the funding of 3,000,000*l.* of Exchequer bills in 1829. We come now to the operation of Mr. Vansittart (Lord

Bexley) in 1818, and whereby a certain amount of 3 per cents. was exchanged for 3½ per cents., which is the conversion of stock of a low denomination into stock of a higher denomination.

The details of this transaction are set forth in the work of "Fairman on the Funds" in the following terms.

"By virtue of an act passed in the 58th year of the reign of Geo. III. c. 23. (1818), the sum of 3,000,000*l.* was authorised to be raised; and the subscribers thereto, upon the transfer of 100*l.* 3 per cent. Consolidated or Reduced Annuities, in no smaller sum than 2,000*l.*, to the Commissioners for the Reduction of the National Debt, became entitled to 88*l.* in annuities to be created at the rate of 3*l.* 10*s.* per cent.; and, upon payment of 11*l.* in money, became entitled to the further sum of 12*l.* in these annuities, whereby the following capitals were created, viz.

"On 16,945,000*l.* 3 per cent. Consolidated Annuities, at 88*l.* 3½ per cent. for every 100*l.* transferred	£14,911,600
"On 10,327,000*l.* 3 per cent. Reduced do. do.	9,087,760
"On 2,999,920*l.*, the subscription in money, at the rate of 12*l.* stock for every 11*l.* in money .	3,272,000
	£27,272,000

"The interest of this stock is not to be reduced, nor the stock paid off, for ten years from the 5th of April 1818.

"The 3½ per cent. Annuities created by the above-mentioned act will be redeemable at par after the 5th of April 1829, upon six months' notice being given in the London Gazette and affixed upon the Royal Exchange, by payments of not less than 500,000*l.* at one time."

From the foregoing state of facts it therefore appears that this was a double operation. The government raised 2,999,920*l.* in money, in consideration of which a capital of 27,272,000*l.* in 3 per cent. stock was converted into 3½ per cents., and the sacrifice which the government made, in order to obtain this conversion, resulted from the difference in the annual charge, as it existed after the measure was accomplished, and as it would have been if there had been no conversion of 3 per cents. into 3½ per cents., and that the 2,999,920*l.* had been raised in 3 per cents. instead of 3½ per cents.

Now, the price of 3 per cent. consols, on the 28th of February, 1818, was 79*l.* 3*s.* per cent., and on the 31st of August of the same year it was 74*l*. 1*s*. per cent., which gives a mean price of 76*l*. 12*s*. per cent., from which, deducting 18*s*. for accrued dividend, leaves a net price of 75*l*. 14*s*. per cent.; and, considering that money is seldom borrowed at the market-price of stock, it is not to be imagined that, if the government had borrowed in a 3 per cent. stock, it would have been able to do it at above this mean price.

Now, at the price of 75*l*. 14*s*. the sum of 2,999,920*l*. is equivalent to a capital in 3 per cent. stock of £3,962,906

Add the capital in 3 per cent. stock subscribed . 27,272,000

£31,234,906

And, therefore, if there had been no conversion of the 3 per cents. into 3½ per cents., and that the 2,999,920*l*. had been raised in 3 per cents., there would have existed a capital of 31,234,906*l*. in 3 per cent. stock, on which the annual charge for interest would have been £937,047

But in lieu of this, there was created a capital of 27,272,000*l*. in 3½ per cents., on which the annual charge is 954,520

Difference . . . £17,473

And, therefore, the sacrifice made by the government, in the conversion of 27,272,000*l*. 3 per cents. into 3½ per cents., and by raising 2,999,920*l*. in 3½ per cents. instead of 3 per cents., was a perpetual annuity of 17,473*l*.

But if the 3½ per cents. should be reduced to 3 per cent., the annual charge will sink from 954,520*l*. to 818,160*l*.

And, therefore, previous to the reduction, the gain in favour of the 3 per cents. is an annuity of 17,473*l*., but after this reduction there is a gain in favour of the 3½ per cents. of a perpetual annuity of 118,887*l*.

And, therefore, if this reduction had taken place in 1829 (being the year when the guarantee expired) the gain in favour of the 3½ per cents. would have been a perpetual annuity of 118,887*l*. deferred for 11 years, the present value of which, at 3½ per cent. during 11 years, and 3 per cent. for ever after, is . . . £2,705,559

Minus the present value of an annuity of 17,473*l*. for 11 years, at 3½ per cent., which is . . 158,395

£2,547,164

If the reduction should take place in 1840, the gain in present value will be £1,580,639

If in 1845	1,249,348
1850	970,848
1860	539,864
1880	19,902

It is to be noted that all these calculations are upon the principle that the reduction of the 3½ per cents. is to take place at par.

And, now, if we would see how the fact of the matter stands in this present year, 1838, we shall find, upon careful investigation, that such has been the state of the stock-market, that, rather than be paid off, the holders of the 3½ per cents., 1818, would have been most willing to exchange for a 3 per cent. stock, at 94 per cent., when the following would have been the position of things.

The capital under consideration is . . .	£27,272,000
Add the capital to which an annuity of 17,473*l.* will increase in 20 years at 3½ per cent . . .	500,025
	£27,772,025

And which, at 94 per cent., is equivalent to a capital in 3 per cent. stock of	£29,544,707
The capital of the 3 per cents. is	31,234,906
Difference . . .	£1,690,199

And, therefore, the gain in 1838 in favour of the 3½ per cents. is a capital of 1,690,199*l.* in 3 per cent. stock, which at 94 per cent. is equivalent to 1,588,787*l.* in money to be received at the end of 20 years, the present value of which (that is, the value in 1818) at 3½ per cent. is 793,761*l.*

Wherefore it is manifest that the operation of first converting these 3 per cents. into 3½ per cents., and afterwards in 1838 bringing them back again to the same stock at 94 per cent., is equivalent to the cancelling in 1838 of a capital of 1,690,199*l.* of 3 per cent. stock, without the payment of a single farthing consideration in money, and it is also equivalent to the gain in 1818 of 793,761*l.* in money.

And, indeed, there was a profit on the transaction at the expiration of the guarantee in 1829; and, supposing it had then been judged expedient to reduce these 3½ per cents. to 3 per cent. at the price of

90 per cent. (which might have been accomplished with the greatest facility, and even at a higher price) the following would have been the state of the account.

The original capital is	£27,272,000
Add the sum to which 17,473*l.* per annum increases in 11 years at 3½ per cent.	232,005
	£27,504,005
And which at 90 per cent. is equivalent to a capital in 3 per cent. stock of	£30,560,006
The capital in 3 per cents. is	31,234,906
Difference	£674,900

And, therefore, the difference in favour of the 3½ per cents. offers the following equivalents.

1. It is equivalent to the cancelling in 1829 of a capital of 674,900*l.* of 3 per cent. stock, without a single farthing consideration in money.

2. It is equivalent to the gain in 1829 of a capital of 607,410*l.* in money.

3. It is equivalent to the gain in present value (that is, value in 1818) of a capital of 414,692*l.* in money.

This is, then, the state of the matter; and, when all things are duly computed and considered, it evidently appears that this was a most sound and sensible operation, and this upon another ground, and apart from the profit on the transaction itself: for, by creating a 3½ per cent. stock which previously had no existence, and rendering the public familiar with stock of this denomination, it paved the way for a reduction of the 4 per cents. in 1824 and 1830, and which, if no 3½ per cent. stock had previously existed, would probably not have been so easy of accomplishment.

And now it may be said that the total gain cannot be so much as we have stated, because all the calculations are grounded in the supposition that the whole of the 3½ per cent. stock created in 1818, still subsists; whereas it is well known that a considerable part of this stock has been cancelled by the operations of the sinking fund, and by other means. But this will not invalidate the argument: for—

1. This being a matter of comparison, it is necessary for this purpose that all the stock should still be supposed to exist, in order to show the simple and sole result of the original transaction, divested of every accidental and extraneous circumstance.

2. Although the objection affects the total absolute gain, yet it will not apply to the proportional gain; and the gain actually made will always be in the same proportion to the stock that remains as the whole gain is to the whole amount of stock originally created; and this is sufficient: for, as the goodness or badness of a thing is a question of quality apart from determinate quantity, so is the nature and quality of the present transaction to be tested by the rule of proportion; and, therefore, though the actual absolute gain will be modified, according to the greater or less amount of stock in existence, yet this will not change the quality of the transaction.

And, therefore, the argument remains entire. That nothing material, however, may be left unsaid, and having supposed that the whole of the stock still subsists, we will now suppose that, dating from the year of its creation in 1818 to the present year 1838 (which is a period of 20 years), the whole of it has been cancelled by the operations of the sinking fund; and we will then compare the result with the operations of the sinking fund during the same period in the purchase of the 3 per cents.

According to the quotations of the Stock Exchange on the 28th of February and the 31st of August in each year from 1818 to 1838, the mean price of Consols, clear of dividend, is for the whole period 83*l*. 14*s*. 2*d*. per cent., which is a rate of interest of 3*l*. 11*s*. 8$\frac{18}{100}$*d*. per cent.

In like manner the mean price of 3$\frac{1}{2}$ per cents. 1818, during the period from their creation in 1818 to 1838, is 92*l*. 5*s*. 3*d*. per cent., which is a rate of interest of 3*l*. 15*s*. 10$\frac{45}{100}$*d*. per cent.

The rate of interest being 3*l*. 11*s*. 8$\frac{18}{100}$*d*. per cent., the value of the debt in 3 per cents. is 26,146,211*l*., and this debt will be discharged in the period from 1818 to 1838, which is 20 years, by means of an annuity of 905,477*l*.; and, the debt discharged being a perpetual annuity of 937,047*l*., so is it evident that at the before-mentioned rate of interest this perpetual annuity of 937,047*l*. is equivalent to an annuity of 1,842,524*l*. terminable in 20 years.

On the other hand: the rate of interest being 3*l*. 15*s*. 10$\frac{45}{100}$*d*. per cent., the value of the debt in 3$\frac{1}{2}$ per cents. is 25,161,829*l*., and this debt will be discharged in 20 years by means of an annuity of 851,953*l*.; and, the debt discharged being a perpetual annuity of

954,520*l.*, it follows that, at the before-mentioned rate of interest, this perpetual annuity of 954,520*l.* is equivalent to an annuity of 1,806,473*l.* terminable in 20 years.

And, now, in final result it stands thus :—

The debt in 3 per cents. is discharged in 20 years, by means of an annuity of		£905,477
The annuity that discharges the debt in 3½ per cents. in the same period, is .	£851,953	
Add the excess of annuity over the 3 per cents. during the same period	17,473	
		869,426
Difference . . .		£36,051

The difference, therefore, in favour of the 3½ per cents. is an annuity of 36,051*l.* for 20 years, the present value of which at 3*l.* 11*s.* $8\frac{18}{100}$*d.* per cent. is 511,579*l.*

Farther, this annuity of 36,051*l.* increases in 20 years to 1,040,991*l.*, which at the redemption price of 83*l.* 14*s.* 2*d.* per cent. is equivalent to a capital of 1,243,593*l.* in 3 per cent. stock, and, therefore, the gain in 1838 in favour of the 3½ per cents. is precisely the same thing as if a capital of 1,243,593*l.* in 3 per cent. stock should be cancelled without the payment of a single farthing consideration.

And, therefore, the argument holds every way; and whether we consider the whole of the 3½ per cent. stock created in 1818 as still subsisting, or whether we consider the whole as cancelled by the operations of the sinking fund, it is always certain that this was a most excellent and advantageous transaction.

And now, the true state of the case being that part of the 3½ per cent. stock is cancelled and that part still remains, so will it follow, from the foregoing calculations, that, upon the part which is cancelled, the gain in 1838 is equivalent to 38,171*l.* in money upon every million of 3½ per cent. stock so cancelled, and which is again equivalent to the cancelling of a capital of 45,600*l.* in 3 per cent. stock without any consideration whatever.

That upon so much of the stock as still subsists the gain in 1838, by a reduction to 3 per cent. at 94 per cent., is 58,257*l.* in money upon every million of 3½ per cent. stock, and which is again equivalent to the cancelling of a capital of 69,595*l.* in 3 per cent. stock without any consideration whatever.

And if that part which still remains should be reduced to $3\frac{1}{2}$ per cents. at par in 1840, the gain will be 124,342*l.* in money upon every million of $3\frac{1}{2}$ per cent. stock, and which, in consequence of the reduction at par, is equivalent to the same capital in 3 per cent. stock.

And, therefore, with all these facts before us, we are warranted in the conclusion that this was a most advantageous, and indeed a most extraordinary, operation; and apart from its own inherent merits, by preparing the way for a reduction of the 4 per cents., it has led to very important results.

Note (4.) referred to at page 172.

This matter of the Long Annuity may be considered under various aspects.

1. It may be reduced to a perpetuity, and considered as so much 3 per cent. stock, and then the account will stand as it is.

2. It may be severed from the stock, and considered separately, and then we shall have to make two comparisons: the one between the value of the Long Annuity, and an equal value in $3\frac{1}{2}$ per cent. stock, and the other between the 3 per cent. stock and an equal value in $3\frac{1}{2}$ per cent. stock.

3. We may join an equal amount of Long Annuity to the loan in $3\frac{1}{2}$ per cents.

And now, leaving the first point untouched, as being inherent in the principle of Mr. Hume's Resolutions, and therefore already discussed, we come to the second, which consists in severing the Long Annuity from the 3 per cent. stock, and comparing each separately with the same value in $3\frac{1}{2}$ per cents.

The value of the Long Annuity apart from the 3 per cent. stock is 1,681,320*l.*, and the rate of interest on the $3\frac{1}{2}$ per cent. stock, being 3*l.* 13*s.* $10\frac{87}{100}$*d.* per cent.: the sum of 1,681,320*l.* is equivalent to a capital of 1,773,934*l.* in $3\frac{1}{2}$ per cent. stock, the annual charge, on which is 62,088*l.*, but after the reduction to 3 per cent., the charge is diminished to 53,218*l.*

The rate of interest on the present loan being 3*l.* 9*s.* $6\frac{86}{100}$*d.* per cent., and the value of the Long Annuity being 1,681,320*l.*, this is equivalent to 1,949,545*l.* in 3 per cent. stock, the charge on which is 58,486*l.*, and therefore, previous to the reduction of the 3½ per cents. to 3 per cents., the gain in favour of the Long Annuity is the difference between the charge of 62,088*l.* and 58,486, which is an annuity of 3602*l.*: and after the reduction the gain in favour of the 3½ per cents. is the difference between the charge of 53,218*l.* and 58,486*l.*, which is a perpetual annuity of 5268*l.* And therefore supposing the 3½ per cents. to be reduced to 3 per cent. at the end of 5 years, the matter will stand thus:—

The gain in favour of the 3½ per cents. is a perpetual annuity of 5268*l.* deferred for 5 years, the present value of which, at 3¼ per cent. during 5 years, and 3 per cent. for ever after, is £149,458

Deduct the gain in favour of the Long Annuity, which is an annuity of 3602*l.* for 5 years, the present value of which, at 3¼ per cent., is 16,500

£132,958

And, therefore, the gain in favour of the 3½ per cents. is 132,958*l.* in present value.

This being the loss on the Long Annuity alone, let us now consider the loss on the remainder of the loan, which consists of 3 per cent. stock.

The whole of the loan, when the Long Annuity is reduced to a perpetuity, consists of a capital of . . . £17,392,829

Deduct the capital which is equivalent to the Long Annuity 1,949,545

Remains £15,443,284

The annual charge on which, at 3 per cent., is £463,299

The capital of the debt in 3½ per cents. with abstraction of a sum equivalent to the value of the Long Annuity, is £14,052,259

The annual charge on which, at 3½ per cent., is £491,829

But which charge, after the reduction to 3 per cent., is diminished to £421,568

And therefore, previous to the reduction, the gain, in favour of the 3 per cents. is an annuity of 28,530*l.*, but, after the reduction, the gain, in favour of the 3½ per cents., is a perpetual annuity of 41,731*l.*

And so that, supposing the 3½ per cents. to be reduced to 3 per cent. at the end of 5 years, the following will be the state of the comparison:—

The gain in favour of the 3½ per cents. is a perpetual annuity of 41,731*l.* deferred for 5 years, the present value of which, at 3½ per cent. during 5 years, and 3 per cent. for ever after, is £1,183,947

Deduct the present value of an annuity of 28,530*l.* for 5 years at 3½ per cent. which is 130,687

Remains . £1,053,260

And, therefore, the gain on the value in 3½ per cents. as compared with the same value in 3 per cents., when abstracted from the Long Annuity, is £1,053,260

Add the gain on the Long Annuity . . . 132,958

Total Gain . £1,186,218

And, therefore, the total gain is precisely the same as in Note 1., when the Long Annuity was reduced to a perpetuity, and the whole considered together according to the principle of Mr. Hume's Resolutions; and this cannot be otherwise, because all the different parts of a thing, when taken separately, must be equal to the whole of that thing.

And, with reference in particular to the Long Annuity, it must be considered, that, being irredeemable by its very nature, we are as much deprived of the gain made by the reduction of the 3½ per cents. in the case of the Long Annuity as in the case of the 3 per cents.; and, indeed, as the Long Annuity is essentially irredeemable and its rate of interest irreducible, while the 3 per cents., from the circumstance of their nominal capital, are only irreducible up to a certain point; so is it certain, that, if there should be a reduction of the 3 per cents. to 2½ per cent., the loss on that part of the loan which consists of Long Annuity, would be greater than on the 3 per cents., as we will now proceed to show.

The annual charge on a capital in 3½ per cent. stock, which is equivalent in value to the Long Annuity, is . . . £62,088

This charge, after the reduction to 3 per cent., is diminished to £53,218

And after the reduction to 2½ per cent., it is further diminished to £44,348

And the charge on the Long Annuity being 58,486*l.*, so if, after the reduction to 3 per cent. at the end of 5 years, there should be a further reduction to 2½ per cent., at the end of the 10 following years, it will ensue—

That the gain in favour of the 3½ per cents. is a perpetual annuity of 14,138*l*., deferred for 15 years, *plus* an annuity of 5,268*l* for 10 years, deferred for 5 years, and *minus* an annuity of 3602*l*. for 5 years.

Now the rate of interest being 3½ per cent. during 5 years, 2¾ per cent. during 10 years, and 2½ per cent. for ever after, the present value of a perpetual annuity of 14,138*l*., deferred for 15 years, is	£366,291
And the rate of interest being 2¾ per cent. during 10 years, and 3½ per cent. during 5 years, the present value of an annuity of 5268*l*. for 10 years, deferred for 5 years, is	38,968
	£405,259
Deduct the present value of an annuity of 3,602*l*. for 5 years at 3½ per cent., which is . . .	16,500
	£388,759

And, therefore, under the related circumstances, the gain on the 3½ per cents., as compared with the Long Annuity, is 388,759*l*. in present value.

Come we now to the calculation of the 3 per cents.

The capital in 3 per cent. stock, which is equivalent in value to the Long Annuity, is	£1,949,545
The annual charge on which, at 3 per cent., is .	£58,486
But after the reduction to 2½ per cent., the annual charge is diminished to	£48,739
The capital, in 3½ per cent. stock, which is equivalent in value to the Long Annuity, is	£1,773,934
Charge at 3½ per cent.	£62,088
„ 3 per cent.	£53,218
„ 2½ per cent.	£44,348

And, therefore, the gain on the 3½ per cents. is a capital of 175,611*l*. to be received at the end of 15 years, the present value

of which, at 3¼ per cent. during 5 years, and 2¾ per cent. during 10 years, is	£113,745
Plus the present value of an annuity of 5268*l.* for 10 years, deferred for 5 years, and which, at 3¼ per cent. during 5 years, and 2¾ per cent., during 10 years, is	38,968
	£152,713
Deduct the present value of an annuity of 3,602*l.* for 5 years, and which, at 3¼ per cent., is . . .	16,500
	£136,213

And the loss, on the Long Annuity being 388,759*l.*, so is it evident that the loss on the Long Annuity exceeds the loss on the 3 per cents. by 252,546*l.* Or, in other words, it stands thus:—that if, instead of borrowing a part in Long Annuity, the whole of the loan had been made in 3 per cent. stock, the loss, under the related circumstances, would be diminished to the extent of 252,546*l.*

And, therefore, by borrowing a part in Long Annuity, there can be no gain, but if at any period there should be a reduction of the 3 per cents. to 2½ per cent. the loss would be increased.

This loss on the Long Annuity, as compared with the 3 per cents., will always be in proportion to the greater or less remoteness of the period when the reduction to 2½ per cent. takes place. Thus, supposing this reduction should take place at the end of 20 years from the date of the loan, the gain in favour of the 3 per cents. would be a perpetual annuity of 9,747*l.* deferred for 20 years, the present value of which, at 3¼ per cent. during 10 years, 2¾ per cent. during 10 years, and 2½ per cent. for ever after, is 214,934*l.*

And, supposing it should take place at the end of 40 years from the date of the loan, the gain in favour of the 3 per cents. would be a perpetual annuity of 9747*l.* deferred for 40 years, the present value of which, at 3¼ per cent. during 20 years, and 2¾ per cent. during 20 years, and 2½ per cent. for ever after, is 118,489*l.*

And although the annuity would then have been long expired, yet this makes no difference, because the loss on the annuity, as compared with the 3 per cents., consists in the privation of that gain which results from the reduction of the 3 per cents., and which gain would evidently have been greater, if the whole of this loan had been in 3 per cents., and no part of it in Long Annuity.

Let us now see how the matter stands, upon the supposition that the same amount of Long Annuity, and at the same price, had been joined to the loan in 3½ per cents.

The rate of interest for the Long Annuity is 3*l*. 9*s*. $6\frac{86}{100}$*d*. per cent., and the value of this annuity being 1,681.320*l*., the annual charge in perpetuity is £58,486

The sum furnished by the Long Annuity being 1,681,320*l*., the sum required to complete the 15,000,000*l*. is 13,318,680*l*., and the rate of interest at which the money is borrowed in the 3½ per cents. being 3*l*. 13*s*. $10\frac{27}{100}$*d*. per cent., the annual charge on 13,318,680*l*. at this rate of interest is . . . 491,829

£550,315

And, therefore, the annual charge for 15,000,000*l*. being 550,315*l*., this gives a mean rate of interest of 3*l*. 13*s*. 4½*d*. per cent., and the amount of 3½ per cent. stock, which, at this rate of interest, is equivalent to a capital of 15,000,000*l*. in money, is 15,723,286*l*.

And, therefore, when the Long Annuity is turned into a perpetuity, the whole is equivalent to a capital of 15,723,286*l*. in 3½ per cent. stock, and on which the annual charge for interest is 550,315*l*., and the capital of the 3½ per cents., in the sense of Mr. Hume's Resolutions (see Note 1), being 15,826,193*l*., and the charge 553,917*l*.; so is it obvious that, by joining the same portion of Long Annuity to the 3½ per cents., as is joined under the present loan, there is a gain of 102,907*l*. in capital, and of 3602*l*. in annual charge.

This is, then, the state of the case, upon the supposition that things should for ever remain without alteration, and that there should, at no period whatever, be a reduction of the 3½ per cents.; but if this reduction should take place, then everything will be as we have already described it, when we severed the Long Annuity from the 3 per cent. stock, and then compared the remainder with the same value in 3½ per cent. stock.

For, the Long Annuity being in both cases the same, may be ejected entirely from the comparison, and the remainder will then consist of a capital of 15,443,284*l*. in 3 per cent. stock, with a charge of 463,299*l*., to be compared with a capital of 14,052,259*l*. in 3½ per cent. stock, and a charge of 491,829*l*.; and this comparison has been made already.

And now of what has been stated, this is the sum :—

If the Long Annuity be reduced to a perpetuity, and that the whole of the present loan be then compared with a loan in 3½ per cents., and that the latter be reduced to 3 per cents., at the end of 5 years the gain in favour of the 3½ per cents., is 1,186,218*l.* in present value, and in proportion for other periods.

If the present loan be divided into two parts, and each considered separately, and there be a reduction of the 3½ per cents. at the end of 5 years, then, on that part of the loan which consists of Long Annuity, as compared with an equal value in 3½ per cent. stock, there will be a loss of 132,958*l.*, and on the remainder of the loan, consisting of 3 per cent. stock, as compared with the same value in 3½ per cent. stock, there will be a loss of 1,053,260*l.*, making a total loss of 1,186,218*l.* in present value.

If after a reduction to 3 per cent. stock, at the end of 5 years, there be a further reduction to 2½ per cent., at the end of the 10 following years, and that, having reduced the Long Annuity to a perpetuity, the whole of the present loan be considered simply as so much 3 per cent. stock, then the loss on the entire loan, as compared with a loan of the same amount in 3½ per cents., will be 1,215,193*l.* (see Note 1) in present value, and in proportion, if the reductions take place at different periods of time.

But, if each part be considered separately, then the loss on the Long Annuity, as compared with an equal value in 3½ per cent. stock, will be 388,759*l.*, and the loss on the 3 per cent. stock, as compared with an equal value in 3½ per cent. stock, will be 1,078,980*l.*, making a total loss of 1,467,739*l.* in present value, and in proportion, if the reduction take place at different periods.

And, therefore, it is established, that, under the related circumstances, the loss on the Long Annuity exceeds the loss on an equal value in 3 per cent. stock by 252,546*l.* in present value.

Now, as long as there is no reduction from 3 to 2½ per cent., it is a matter of indifference whether each part of the present loan be considered and compared separately or taken together: but when there is a reduction to 2½ per cent. the case is altered. For the 3 per cents. of the present loan being reduced to 2½ per cent., while the Long Annuity remains unchanged, the equivalency and equality which before existed is destroyed, and, therefore, the only true method, in case of a reduction to 2½ per cent., is to consider each part of the loan separately.

And, now, take this observation:—that all the preceding calculations respecting the Long Annuity are founded on the hypothesis that the reduction of the 3½ per cents. does not proceed from a decline in the rate of interest on private securities, but solely from a rise in the value of government securities, while the rate of interest on private securities remains unaltered, and then the same profit is made by the state as by an individual money dealer, who, from his superior credit, should be able to borrow below the ordinary rate of interest.

All circumstances induce us to think that this is the true hypothesis, and that, whenever there shall be a reduction of the 3½ per cents., it will proceed from this cause, and not from a decline in the average rate of interest on private securities.

Farther, there being great and frequent changes and fluctuations in the rate of interest on private securities, the only way to make true judgment of the matter is to take the average of a certain number of years, and as in this number of years there will be one or more in which the rate of interest will be lower than usual, but still leave the average the same as the preceding average of an equal number of years; if the reduction should take place during one of these years of low interest on private securities, having a corresponding effect on public securities, and the reduction should proceed entirely from this cause, the profit would, nevertheless, be the same as if the reduction had taken place, solely in consequence of a rise in the value of government securities, while the interest on private securities remained unchanged. Because the reduction once made is for ever; and when the rate of interest again advances on private securities the government does not advance its rate to the public creditor.

And, therefore, in this case, the government is precisely in the situation of a money dealer, who should always borrow money at the lowest rate of interest, and re-lend it at the average rate of interest.

Wherefore, it is evident that, whether the reduction take place in consequence of a rise in the value of government securities, the rate of interest on private securities remaining unchanged, or whether it be produced by a temporary decline in the rate of interest on private securities, the same profit is made in either case; and as this profit cannot be made on the Long Annuity, because it is irredeemable, so does this privation of profit constitute the difference between the Long Annuity and the 3½ per cents.

If, however, the reduction of the 3½ per cents. should proceed from an absolute decline in the average rate of interest on private securities, and that this should continue for ever, or for a long period of time, then, while the comparison between the 3 per cent. stock of the present loan, and the 3½ per cents. would remain unvaried, the case respecting the Long Annuity would have to be stated and considered rather differently.

And if the reduction should take place, partly from a decline in the average rate of interest on private securities, and partly from a rise in the value of government securities, then each cause and its effect would have to be stated and computed separately.

And, therefore, if a reduction to 3 per cent. should take place at the end of 5 years, and to 2½ per cent. at the end of the 10 following years, let it then be that the first reduction takes place in consequence of a rise in the value of government securities, and that the second takes place in consequence of a decline in the rate of interest on private securities, and that, after 25 years, the rate of interest on private securities shall return to the same point as at the period of the loan, we shall then have a state of things, of which the investigation, without being precisely difficult, will require some time and care and labour of operation; and for our guide, as well in the present as in all other the like cases, we must attend to these six things.

1. That whenever there is a reduction in the average rate of interest on private securities, and that no reduction of interest ensues on government securities, there is an absolute loss to the state.

2. That whenever there is a rise in the price of government securities, and that a reduction of interest ensues, while there is no decline in the rate of interest on private securities, there is absolute profit to the state.

3. That whenever the same state of things exists as in the second proposition, but that the interest on a government security is not reduced, either because it is irredeemable *per se*, or that it has a large nominal capital, then there is comparative loss to the state.

4. That whenever there is a decline in the rate of interest on private securities, and that the interest on government securities is reduced in the same proportion, then, as long as that decline on private securities continues, there is neither loss nor profit to the state.

5. That if, after a reduction of interest on a public debt in consequence of a decline of interest on private securities, there should be a rise of interest on private securities, there is the same absolute profit to the state, as if the original reduction of interest had taken place in consequence of a rise in the value of government securities, while the interest on private securities remained without alteration.

6. That if, after a reduction in consequence of a rise in government securities, there should be a fall in government securities, in consequence of a rise in the rate of interest on private securities,

there would be a still greater profit than by the fifth proposition, and it would be the same thing, if there were no fall in the value of government securities, but simply a rise of interest on private securities; because the profit consists in the difference between the interest paid by the state and the interest on private securities: and this difference being greater by the present than by the last proposition, so is the profit also greater.

All this being laid down, we will now state the case respecting the Long Annuity.

According to the hypothesis, the first reduction of the 3½ per cents. to 3 per cent. takes place at the end of 5 years, and as this proceeds solely from a rise in the value of government securities, there is an absolute profit on the 3½ per cents., as compared with the Long Annuity, of 132,958*l.*, and of which we have already furnished the particulars.

The second reduction, which takes place at the end of the 10 following years, being in consequence of an absolute decline in the rate of interest on private securities, there is no absolute profit in the reduction of the 3½ per cents., but there is comparative profit; because, by the reduction to 2½ per cent., in accordance with the decline of interest on private securities, there is an escape from loss. And precisely for this reason, there is loss on the Long Annuity, because the interest on it is not reduced in conformity with the reduction of interest on private securities.

Now, when the second reduction takes place, the Long Annuity has 9 years 152 days to run; and, therefore, if we had to consider the Long Annuity simply and absolutely, we should merely have to state the difference in the value of an annuity for 9 years 152 days at the respective rates of interest of 3*l.* 9*s.* 6$\frac{86}{100}$*d.* per cent. (the price of the loan) and 2*l.* 10*s.* per cent.; but having to consider it with reference to the 3½ per cents., and having already included in the first comparison all the loss that can derive to the Long Annuity by a reduction of interest to 3 per cent., so must the present comparison be between the value of 101,875*l.* of Long Annuity, at the respective rates of 3 and 2½ per cent.

Now, the value of 1*l.* per annum for 9 years 152 days at 2½ per cent. is	8·3438265
And the value of the same annuity at 3 per cent. is	8·1504560
Difference	·1933705

And which difference on an annuity of 101,875*l*. amounts to 19,682*l*.

This is, therefore, the second loss on the Long Annuity with relation to the 3½ per cents.

Come we now to the third loss, and this arises from the circumstance that, at the end of 25 years, the rate of interest on private securities returns to the point at which it stood at the period of the loan, and the following will then be the state of the 3½ per cents.:—

There is an absolute profit on the first reduction to 3 per cents. of 132,958*l*., and of which we have already given the particulars.

There is no absolute profit, but there is an escape from loss, and, therefore, a comparative profit, by the second reduction to 2½ per cent., and when, at the end of 25 years, interest returns to its first level, this comparative profit is converted into absolute profit, and we have now, therefore, merely to state this profit, because this constitutes the third ground of difference between the Long Annuity and the 3½ per cents.

The annual charge on the first reduction to 3 per cent., on that part of the loan in 3½ per cents., which is equivalent in value to the Long Annuity, is	£53,218
The annual charge at 2½ per cent., is . .	44,348
Difference . . .	£8,870

And, therefore, the absolute profit on the 3½ per cents. by the second reduction, is a perpetual annuity of 8,870*l*. deferred for 25 years, the present value of which, at 3¼ per cent. during 5 years, 2¾ per cent. during 10 years, 2½ per cent. during 10 years, and 2½ per cent. for ever after, is 179,252*l*. This is the third loss on the Long Annuity.

And; therefore, the total loss on the Long Annuity, as compared with the 3½ per cents., stands in the following particulars:—

Gain on the 3½ per cents., by the first reduction to 3 per cent.	£132,958
Loss on the Long Annuity by the second reduction to 2½ per cent.	19,682
Gain on the 3½ per cents. by the rise in the rate of interest on private securities . . .	175,252
	£331,892

And the former gain, when the two reductions proceed solely from a rise in the value of government securities, being 388,759*l.*, the difference is 56,867*l.*

This, in our humble judgment, is the way in which these matters ought to be stated; and let no one say that this is a fanciful and imaginary state of things, for, on the contrary, it is all reason and plain simple fact. For it is both reason and fact that there should be, and frequently is, a rise in the value of government securities, while the interest on private securities remains unaltered; and when a reduction of interest on a public debt takes place, in these circumstances, and upon this ground, there is absolute profit.

It is also a fact that there are frequent fluctuations in the rate of interest on private securities, and if a reduction of interest on a public debt should take place in consequence of the interest on private securities being temporarily below the average, the moment interest returns to its average level, or above it, there is also absolute profit.

Wherefore, considering that both by reason and fact there are two very great probabilities of making profit by the reduction of interest on a perpetuity, which can never have place in an annuity for a term of years, so does it seem pretty certain that there will, at least, be the same profit on the 3½ per cents., as if the annuity were 3 per cent. stock, and it is also highly probable that it will be still greater.

We would now make this further observation:—The comparison in the present note of the Long Annuity, as well with the 3½ per cent. as the 3 per cent. stock, being founded on the principle that the reduction of the interest on both stocks proceeds from a decline in the rate of interest on public securities, while interest on private securities remains unvaried; so is it clear that while there is absolute profit on the 3 and 3½ per cent. stock to all the extent of the reduction in the annual charge, yet there is no absolute loss on the Long Annuity; but there is comparative loss arising from the circumstance, that by borrowing money in a temporary instead of a permanent annuity, an absolute profit is missed which would otherwise have been made. And therefore make the calculation which way we will, it always resolves itself into a mere statement of the absolute profit made by the reduction of annual charge on that amount of 3 and 3½ per cent. stock, which is equivalent in value to the Long Annuity, and the amount of this absolute profit constitutes the amount of comparative loss on the Long Annuity.

In treating of temporary annuities in a general point of view, this is also to be regarded:—that the grantor of the annuity may employ the money which he receives as a consideration, three general ways, as—

1. He may employ it in trade or manufactures, or in the improvement of an estate, and then he takes the chance of all the changes and fluctuations in the rate of interest during the whole time the annuity has to continue. With every rise in the rate of interest he will be a gainer; it being evident that if he had not already borrowed the money, and this for a length of time, he would have to pay a higher rate of interest.

And, on the contrary, with every decline in the rate of interest he will be a loser, and this by reason that if he had not already borrowed the money he would be able to obtain it at a lower rate of interest.

2. He may re-lend the money for short periods of time, as is practised by dealers in money, and then precisely as in the last case he will gain by a rise and lose by a fall in the rate of interest.

3. He may invest the money which he has received in another annuity, either for a longer or a shorter period of continuance than the one he has granted; and then, quite contrary to the two first cases, he will gain by a fall and lose by a rise in the rate of interest: and this by reason that the value of the annuity he has acquired being increased by the fall and diminished by the rise in the rate of interest, he will in the event of a fall have to sell less of this annuity in order to provide for the payment of the annuity which he has granted than would have been required if interest had remained without variation.

On the contrary, and in the event of a rise, he will have regularly and periodically to sell more of the annuity than would have been required if interest had remained without variation.

And so that in one case, and after having defrayed the annuity which he has granted to the end of the term, a sum will remain over. And in the other, the money which he has received will be exhausted before the expiration of the term, and he will thenceforward have to defray the annuity out of other resources.

Gaining therefore by the fall and losing by the rise in the rate of interest, his gain or loss will be in proportion to the duration of the annuity in which he has invested his money. It will be greatest in the perpetuity, and least in the annuity of the shortest duration.

The loss or gain to the grantor of a temporary annuity who has invested the money which he has received in another annuity, is measured by comparing the value of the two annuities at the actually existing rates of interest.

And now we will illustrate the principles here laid down by case and calculation, in order that we may thereby determine in what cases, under what circumstances, and by what methods a government may convert permanent debts into temporary annuity to its greatest advantage.

Let the rate of interest on private securities be 3½ per cent., let this also be the rate of interest yielded by a 3 per cent. stock, and let there be a debt already existing in a 3 per cent. stock, 3½ per cent. stock, and 4 per cent. stock.

In these circumstances let the government add to the debt already existing by borrowing three millions of money in the following manner:—

1,000,000*l*. in a 3 per cent. stock at 3½ per cent. interest.

1,000,000*l*. in a 3½ per cent. stock at 3¾ per cent. interest.

1,000,000*l*. in a 4 per cent. stock at par.

And then without any variation in the rate of interest on private securities, let there be that decline in the interest on public securities that at the end of 5 years the 4 per cents. are reduced to 3½ per cent., that at the end of the 5 following years the 3½ per cents. are reduced to 3 per cents., and that at the end of the 10 following years the 3 per cents. are reduced to 2½ per cent.

Let us now suppose that the mean rate of interest, (deducible from the price of the 3 per cent. stock,) during the first ten years, is 3¼ per cent. That during the next 10 years it is 2¾ per cent., and then 2½ per cent. for ever after. We shall then have the following state of things. And, first, as regards the

THREE PER CENTS.

The rate of interest being 3½ per cent., the sum of 1,000,000*l*. in money is equivalent to a capital of 1,166,667*l*. in 3 per cent. stock, and on which the annual charge is 35,000*l*.

But at the end of 20 years, when this stock is reduced to 2½ per cent., the charge is diminished to 29,167*l*. And the interest yielded by 1,000,000*l*. in private securities being 35,000*l*., so does it follow that the absolute profit on the 3 per cent. stock is a perpetual annuity of 5,833*l*. deferred for 20 years, the present value of which, at the before-recited rates of interest, is 128,625*l*.

THREE AND A HALF PER CENTS.

The rate of interest, at which the money is borrowed on this stock, being 3¾ per cent., the sum of 1,000,000*l*. is equivalent to a capital of 1,071,429*l*. in 3½ per cent. stock, on which the annual charge is

37,500*l.*, and this is 2,750*l.* more than the annuity yielded by 1,000,000*l.* when invested in private securities.

But, on the reduction of the 3½ per cents. to 3 per cent. at the end of 10 years, the charge is diminished to 32,143*l.*, and this is 2,857*l.* less than the annuity yielded by private securities; and on the second reduction to 2½ per cent., at the end of the 10 following years, the charge is again diminished to 26,786*l.*, which is 8,214*l.* less than the annuity yielded by private securities.

And therefore the absolute profit on the 3½ per cent. stock is a perpetual annuity of 8,214*l.* deferred for 20 years, *plus* an annuity of 2,857*l.* for 10 years, deferred for 10 years, and *minus* an annuity of 2,500*l.* for ten years, to commence immediately.

Now, at the before-recited rates of interest, the present value of a perpetual annuity of 8,214*l.* deferred for 20 years, is £181,129

In like manner the present value of an annuity of 2,857*l.* for 10 years, deferred for ten years, is . 17,987

£199,116

Deduct the present value of an annuity of 2,500*l.* for 10 years, at 3½ per cent., which is . . 21,198

£177,918

And therefore the absolute profit on the 3½ per cent. stock is 177,918*l.* in present value.

FOUR PER CENTS.

The rate of interest at which the money is borrowed in this stock being 4 per cent., the sum of 1,000,000*l.* in money is equivalent to the same capital in 4 per cent. stock, and on which the annual charge is 40,000*l.*

But at the end of 5 years the charge is reduced to 35,000*l.*

At the end of the 5 following years it is further reduced to 30,000*l.*

And, finally, at the end of the 10 following years, it is reduced to 25,000*l.*

And the annuity yielded by 1,000,000*l.* invested in private securities, being 35,000*l.*, so does it follow—

That the gain on the 4 per cent. stock is a perpetual annuity of 10,000*l.* deferred for 20 years, the present value of which, at the before-recited rates of interest, is . . . £220,513

Plus the present value of an annuity of 5,000*l.*

Carried over . . £220,513

Brought forward .	£220,513
for 10 years deferred for 10 years, and which in like manner is	31,480
	£251,993
Minus the present value of an annuity of 5,000*l.* for 5 years at 3½ per cent., which is . . .	22,903
	£228,090

And, therefore, the clear absolute profit on the 4 per cent. stock is 228,090*l.*, in present value.

Let us now suppose that, 3 years after the creation of these several annuities, the price of the 3 per cent. stock is 92*l.* 6*s.* 2*d.* per cent., which is a rate of 3¼ per cent. for money; that the price of the 3½ per cent. stock is 100*l.*, and of the 4 per cent. stock 103 per cent., and that at the rate of 3¼ per cent. interest, all these different stocks shall be severally and respectively converted into annuities for 25 years, and then cancelled.

THREE PER CENTS.

At the price of 92*l.* 6*s.* 2*d.* per cent., the value of the 1,166,667*l.* of 3 per cent. stock is 1,076,931*l.*, and the sum received being only 1,000,000*l.* there is an absolute loss of 76,931*l.* by redeeming the stock at a higher price than that at which it was created.

But there will be a gain on the temporary annuity, and the rate of interest on private securities still being 3½ per cent., while interest on the temporary annuity is only 3¼ per cent., this gain will consist in the difference in the value of an annuity for 25 years at the respective rates of interest of 3½ and 3¼ per cent. Now this difference on 1*l.* per annum is ·4553 years' purchase, and the annuity for 25 years, which at 3¼ per cent. is equivalent to a capital of 1,076,931*l.*, being 63,253*l.*; so does it follow that the gain on the temporary annuity is 28,799*l.*, and which, deducted from the loss of 76,931*l.*, leaves an absolute loss of 48,132*l.*, to be paid at the end of 3 years, the present value of which at 3¼ per cent. is 43,695*l.*

There being therefore an absolute loss of 43,695*l.* arising from the redemption and the cancelling of this stock by means of a temporary annuity, while if it had continued in its original form there would, as already shown, have been an absolute profit of 128,625*l.*, so does it follow that the total loss, absolute and comparative, is 172,320*l.*

THREE AND A HALF PER CENTS.

At the price of 100 per cent., the value of the 1,071,429*l.* of 3½ per cent. stock is 1,071,429*l.*, and the sum received in consideration of this stock being 1,000,000*l.* there is an absolute loss of 71,429*l.* by the redemption of the stock at a higher price than that at which it was originally created.

The annuity for 25 years, which at 3¼ per cent. is equivalent to 1,071,429*l.* is 62,929*l.*, and the difference in the value of 1*l.* per annum at the respective rates of interest of 3½ and 3¼ per cent. being ·4553 years' purchase, the gain on an annuity of 62,929*l.* is 28,652*l.*, and which, deducted from 71,429*l.*, leaves an absolute loss of 42,777*l.* to be paid at the end of 3 years, the present value of which at 3¼ per cent. is 38,874*l.*

There being, therefore, under the related circumstances, an absolute loss of 38,874*l.*, while if the stock had remained in its original form there would, as before shown, have been an absolute profit of 177,918*l.*, so does it follow that the loss, absolute and comparative, is 216,792*l.*

FOUR PER CENTS.

At the price of 103 per cent., the value of the capital of 1,000,000*l.* of which this stock consists, is 1,030,000*l.*, and the sum originally received being only 1,000,000*l.*, there is a loss by the redemption of 30,000*l.*

The annuity for 25 years, which at 3¼ per cent. is equivalent to 1,030,000*l.* is 60,496*l.*, and the difference in the value of 1*l.* per annum for 25 years at the respective rates of interest of 3½ and 3¼ per cent. being ·4553 years purchase, the gain on the annuity of 60,496*l.* is 27,544*l.*, which, deducted from 30,000*l.*, leaves a loss of 2,456*l.*, to be paid at the end of 3 years, the present value of which at 3¼ per cent. is 2,230*l.*

There being thus an absolute loss of 2,230*l.* by cancelling this stock and substituting in its place a temporary annuity, while if it had remained in its original form there would, as before shown, have been an absolute profit of 228,090*l.*; so does it follow that the total loss, absolute and comparative, is 230,320*l.*

Let us now see what would have been the situation of things if, instead of cancelling the stock received in consideration of the temporary annuity, the government had defrayed this annuity by means of a periodical and successive re-sale of portions of the stock, and so that the real charge on the nation should always result from the permanent annuity, and be the same as if no conversion into a temporary annuity had taken place.

THREE PER CENTS.

With reference to the case under consideration, and to a comparison with the temporary annuity, this stock consists in a permanent annuity of 29,167*l.* deferred for 17 years, with the addition of an annuity of 35,000*l.* for 17 years, to commence immediately.

Now, at the before-recited rates of interest, the present value of a perpetual annuity of 29,167*l.*, deferred for 17 years, is	£708,482
And, in like manner, the present value of an annuity of 35,000*l.* for 17 years, to commence immediately, is	460,291
	£1,168,773
On the other hand, and at the before-recited rates of interest, the present value of an annuity of 63,253*l.* for 25 years, is	1,108,795
Profit . . .	£ 59,978

And therefore the profit resulting from the purchase of the permanent debt by means of a temporary annuity, and its subsequent re-sale at advanced prices, is 59,978*l.*, to be received at the end of 3 years, the present value of which, at 3½ per cent., is	£49,948
And the profit, by the reduction of interest on the permanent debt, being, as before stated . .	128,625
The total profit is .	£178,573

in present value.

And so that, when permanent debt is received in exchange of a temporary annuity, we see the wonderful difference between cancelling the stock and allowing it to subsist in its original form, and then, by means of periodical and successive sales, to defray the charge of the temporary annuity.

THREE AND A HALF PER CENTS.

This stock consists in a perpetual annuity of 26,786*l.* deferred for 17 years, the present value of which, at the before-recited rates of interest, is	£650,646
Plus an annuity of 32,143*l.* for 10 years, deferred for 7 years, the present value of which, in like manner, is	222,919
Carried forward . .	£873,565

Brought forward . .	£873,565
And *plus* an annuity of 37,500*l.* for 7 years, to commence immediately, the present value of which, at 3½ per cent., is	233,598
	£1,107,163
On the other hand, the present value of an annuity of 62,929*l.* for 25 years, at the before-recited rates of interest, is	1,103,115
Profit . .	£ 4,048

And, therefore, by the conversion into a temporary annuity, there is a profit of 4,048*l.*, to be received at the end of 3 years, the present value of which at 3½ per cent. is 3,675*l.*, and which, added to the profit of 177,918*l.* produced by the reductions of interest, makes a total profit of 181,593*l.*

FOUR PER CENTS.

This stock consists in a permanent annuity of 25,000*l.*, deferred for 17 years, the present value of which, at the before-recited rates of interest, is	£607,263
Plus an annuity of 30,000*l.* for 10 years, deferred for 7 years, the present value of which, in like manner, is	208,057
Plus an annuity of 35,000*l.* for 5 years, deferred for 2 years, the present value of which, at 3½ per cent., is	150,313
And *plus* an annuity of 40,000*l.* for 2 years, to commence immediately, the present value of which, at 3½ per cent., is	76,852
	£1,042,485
On the other hand, the present value of an annuity of 60,496*l.* for 25 years, at the before-recited rates of interest, is	1,060,466
Loss . .	£ 17,981

And, therefore, by the conversion into a temporary annuity, there is a loss of 17,981*l.*, to be paid at the end of 3 years, the present value of which, at 3½ per cent., is 16,323*l.*, and which, deducted from the profit of 228,090*l.*, produced by the reductions of interest, leaves a profit of 211,767*l.* upon balance.

This is then the state of things when a fall takes place in the rate of interest. Let us now see what happens when there is a rise, and then, taking the case of the 3 per cent. stock for our example, let us suppose that, after the conversion into a temporary annuity at 3½ per cent., the mean rate of interest during the continuance of this annuity shall be 4 per cent., while the interest on private securities shall remain unvaried. The state of the absolute loss will then be as already stated, viz.—

The loss by redeeming the stock at a price beyond that at which it was created, which is	£76,931
Deduct the gain on the temporary annutity .	28,799
Remains loss . .	£48,132

to be paid at the end of 3 years, the present value of which, at 3½ per cent., is 43,695*l*.

This is then the absolute loss, if we suppose the stock to be cancelled; but, supposing it to remain in the hands of the state, as a means whereby to defray the charge of the temporary annuity, there would be a further absolute loss, and which may be thus stated:—

The present value of the temporary annuity of 63,253*l*., at 4 per cent., is	£993,800
And the present value of the permanent annuity of 35,000*l*., at the same rate of interest, is . .	875,000
Difference . .	£118,800

The loss is therefore 118,800*l*., to be paid at the end of 3 years, the present value of which, at 3½ per cent., is 107,848*l*.

And now by what has been said it should seem that, in the event of a rise in the price of the permanent debt, the practice pursued by the British government of cancelling the stock which has been received in exchange of a temporary annuity turns to our disadvantage. But in the event of a fall this practice is attended with benefit.

This as regards a comparison between temporary and permanent annuities, and on which matter we believe that we have left nothing material unsaid.

And now, as a last observation, mark the great advantage which the government enjoys over a private individual in having the power to grant redeemable perpetual annuities, and by which means it has the option either to borrow the money for ever at a certain fixed rate of interest, or from year to year, according as it may square to its advantage or convenience. And what is the consequence? This: that if interest rises, the debt still goes on at the first rate, or the state may redeem it for less than the original consideration; and if interest falls, the state reduces the annuity in proportion.

Now this advantage neither is nor can be enjoyed by any individual, however great his credit. And therefore it is not merely that a government of long-established reputation, by borrowing on proper principles, may make the same profit as an individual of superior credit, but from the circumstance that the credit of a government which rigidly maintains its faith must necessarily be greater than that of an individual, and from the faculty which it possesses of granting redeemable perpetual annuities, its means and opportunities to make profit must greatly exceed those of any individual whatever.

Note (5), referred to in page 173.

When the new 4 per cents. were reduced to 3½ per cents. in 1830 a guarantee was given against any further reduction of interest till the year 1840. An option was also given to take 5 per cents. with a guarantee against a reduction of interest till the year 1873, but upon this condition, that a sacrifice should be made of 30 per cent. in the capital, and thereby reducing the 100*l.* to 70*l.*, and 5 per cent. upon 70*l.* rendering the same annuity as 3½ per cent. upon 100*l.*, it is evident that while both were in the same situation as regards the annuity, the one had a capital of 30*l.* in stock more than the other.

As, if the interest on one stock is reduced to a certain level, or remains without reduction, the interest on every other stock not having a nominal capital will be reduced to the same level, or remain without reduction; so, whatever the situation of the 3½ per cents. in 1873, the situation of the 5 per cents. (the guarantee being then expired) will probably be the same; and, therefore, if the 3½ per cents. should remain without further reduction till 1873, as the 5 per cents. would then be reduced to 3½ per cents., it is clear that the holders of the 5 per cents. must make enormous sacrifices; and, without having received one shilling more annuity than the holders of the 3½ per cents. during the whole period from 1830 to 1873, their annuity will at once be reduced from 3*l.* 10*s.* to 2*l.* 9*s.*, while the holders of the

3½ per cents. will still continue to receive the same annuity as before. Their loss would therefore be an annuity of 1*l.* 1*s.*, the value of which is 30*l.*, being precisely the amount of capital which they sacrificed in the beginning.

This is then the state of things in case there should be no reduction of the 3½ per cents. previous to 1873; but if they should then be reduced to 3 per cents., the 5 per cents. will also be reduced in like manner, and the holders of the 5 per cents. will again lose 30*l.*, because they will only receive 3 per cent. on 70*l.*, while the holders of the 3½ per cents. will receive 3 per cent. on 100*l.*

Let us now suppose that this reduction to 3 per cent. takes place in 1840, when the guarantee expires; the annuity of the holders of the 5 per cents. will then be 10*s.* more than that of the holders of the 3½ per cents., and this will continue till 1873, when the 5 per cents., in the natural order of things, will also be reduced to 3 per cent.; and an annuity of 10*s.*, interest being 3 per cent., will increase in 33 years to 27*l.* 17*s.* 2*d.*, and the original sacrifice of capital being 30*l.*, the subscriber to the 5 per cents. is still a loser of 2*l.* 2*s.* 10*d.* This must also be taken into consideration: that from the moment the 3½ per cents. are reduced to 3 per cents., the holder of the 5 per cents. must treat his annuity in part as terminable, and must consequently lay out a certain sum per annum to increase at compound interest, as otherwise, when his 5 per cents. are reduced to 3 per cents., his loss will be great, as he will only have a capital of 70*l.*, with an annuity of 2*l.* 2*s.*, while the holder of the original 3½ per cents. will have a capital of 100*l.*, with an annuity of 3*l.*

If, after the reduction to 3 per cent., there should be a further reduction to 2½ per cent., the holder of the 5 per cents. must again lay out a part of his annuity to increase at compound interest; for his capital being 70*l.*, and the interest thereon 2½ per cent., this will give him an annuity of only 1*l.* 15*s.*, while the annuity of the holder of the 3½ per cents. is 2*l.* 10*s.*, and therefore 30*l.* is again the value of the difference in their respective positions. And this difference can only be made good by the holder of the 5 per cents. reducing his disposable annuity to the same amount as the annuity of the holder of the 3½ per cents., and laying out the remainder at compound interest; and whether even this shall be effectual will depend upon the period when the reduction to 2½ per cent. shall take place.

And now we will see how the matter stands in present value (that is, in value at the period of the reduction in 1830), and this upon two suppositions: the first, that there shall be a reduction of the 3½ per cents. to 3 per cent.; and the second, that there shall be a further reduction to 2½ per cent.

If the 3½ per cents. should be reduced to 3 per cent. in 1840, the loss to the holder of the 5 per cents. will be a capital of 30*l.*, to be received at the end of 43 years, the present value of which, at 3½ per cent. during 10 years, and 3 per cent. during 33 years, is 7·937439

His gain will be an annuity of ten shillings for 33 years, deferred for 10 years, the present value of which, at 3½ per cent. during 10 years, and 3 per cent. for the remainder of the period, is . . . . . . 7·370812

Loss . .566627

And therefore the loss of the subscriber to the 5 per cents. is ·566627 per cent. (11*s.* 4*d.* upon 100*l.* stock) in present value, and the gain of the government upon 1,000,000*l.* of stock is 5,666*l.*

If the reduction of the 3½ per cents. to 3 per cent. should take place in 1845, the loss of the subscribers to the 5 per cents. will be 2·142859 (2*l.* 2*s.* 10*d.* per cent.), and the gain of the government upon 1,000,000*l.* of stock will be 21,429*l.*

If the reduction should take place in 1850 the loss of the subscribers to the 5 per cents. will be 3·427552 (3*l.* 8*s.* 7*d.* per cent.), and the gain of the government upon 1,000,000*l.* of stock will be 34,276*l.*

If the reduction should take place in 1855, the loss of the subscribers to the 5 per cents. will be 4·468122 (4*l.* 9*s.* 4*d.* per cent.), and the gain of the government upon 1,000,000*l.* of stock will be 44,681*l.*

If the reduction should take place in 1860, the loss of the subscribers to the 5 per cents. will be 5·304391 (5*l.* 6*s.* 1*d.* per cent.), and the gain of the government upon 1,000,000*l.* of stock will be 53,044*l.*

If the reduction should take place in 1865, the loss of the subscribers to the 5 per cents. will be 5·969873 (5*l.* 19*s.* 5*d.* per cent.), and the gain of the government will be 59,699*l.* upon 1,000,000*l.* of stock.

If the reduction should take place in 1873, the subscribers to the 5 per cents. will then lose a capital of 30 per cent., and the government will gain 300,000*l.* upon 1,000,000*l.* of stock, the whole of which, when reduced into present value, will be 6·74781 (6*l.* 14*s.* 11*d.*

per cent.), and the gain of the government will be 67,478*l.* upon 1,000,000*l.* of stock.

And, therefore, supposing there should be no reduction of the 3½ per cents., the loss of the subscribers to the 5 per cents. will be very considerable.

If a reduction to 3 per cents. should be accomplished, the loss of the subscribers to the 5 per cents. will be greater or less according to the period when this reduction takes place; and if it should not take place till 1873, the loss will be the same as if there should be no reduction.

In short, as no reduction can take place till 1840 (the 3½ per cents. being guaranteed till that period), and as, if ever there should be a reduction, the subscribers to the 5 per cents. would suffer loss; so is it manifest that, under all circumstances of a simple reduction to 3 per cent., there must be loss.

We must, therefore, see how the matter will stand, if after a reduction to 3 per cent. there should be a further reduction to 2½ per cent.

Let us then suppose that a reduction to 3 per cent. having taken place in 1840, there shall be a further reduction to 2½ per cent. in 1850, and the following will be the state of the comparison in present value between the 3½ per cents. and the 5 per cents.

The gain in favour of the 5 per cents. will be an annuity of 10*s.* for 10 years, deferred for 10 years, the present value of which, at 3 per cent., when it becomes active, and 3½ per cent. during the deferred period, is . . . . £3·03381

Plus an annuity of 1*l.* for 23 years, deferred for 20 years, the present value of which, at 2½ per cent., when it becomes active, and for the deferred period, 10 years at 3½ per cent. and 10 years at 3 per cent., is . . . . 9·13718

£12·17099

Minus the present value of 30*l.* to be received at the end of 43 years, and which, interest being 3½ per cent. during 10 years, 3 per cent. during 10 years, and 2½ per cent. during 23 years, is . . . . 8·89119

£3·27980

And, therefore, the gain in favour of the 5 per cents. is 3·2798 (3*l.* 5*s.* 7*d.* per cent.), and the loss of the government is 32,798*l.* on 1,000,000*l.* of stock.

If the reduction to 3 per cent. should take place in 1845, and to 2½ per cent. in 1855, the gain in favour of the 5 per cents. is ·501397 (10*s.* per cent.), and the loss of the government is 5,014*l.* on 1,000,000*l.* of stock.

If the reduction to 3 per cent. should take place in 1850, and to 2½ per cent. in 1860, there will be a loss on the 5 per cents. of 1·817247 (1*l.* 16*s.* 4*d.* per cent.), and the gain of the government will be 18,172*l.* on 1,000,000*l.* of stock.

If the reduction to 3 per cent. should take place in 1855, and to 2½ per cent. in 1865, there will be a loss of 3·618233 (3*l.* 12*s.* 4*d.* per cent.), and the gain of the government will be 36,182*l.* upon 1,000,000*l.* of stock.

If the reduction to 3 per cent. take place in 1860, and to 2½ per cent. in 1873, the loss on the 5 per cents. will be 5·304392 (5*l.* 6*s.* 1*d.* per cent.), and the gain of the government will be 53,044*l.* on 1,000,000*l.* of stock.

If there should be a reduction to 3 per cent. in 1873, the loss on the 5 per cents. will be as in the first statement, viz., 6·74781 (6*l.* 14*s.* 11*d.* per cent.), and the gain of the government will be 67,478*l.* on 1,000,000*l.* of stock.

This being therefore the state of the matter, it seems to have been very ill advised in the Chancellor of the Exchequer to adduce the transaction relative to the 5 per cents. in 1830, as an example that the public were not willing to sacrifice the consideration of capital in order to obtain an increased annuity. For no such inducement was held out to them: on the contrary, they were called upon to sacrifice a capital of 30 per cent., while their annuity was to be no more than that of the holders of the 3½ per cents., and therefore the only inducement to accept 5 per cents. in lieu of 3½ per cents. must have consisted in the extended guarantee against a reduction of interest, and the value of this we have shown already; and, so that comparing the subscribers to the 5 per cents. with the subscribers to the 3½ per cents., this is the sum of the matter.

If there should be no further reduction of interest on the 3½ per cents., the subscribers to the 5 per cents. were sure, in the last result of things, to lose very considerably.

If there should be no reduction of the 3½ per cents. below 3 per cent. there would again be a loss, and the longer this reduction were delayed the greater would be the loss.

And, therefore, the only case in which there can be a profit on the 5 per cents. is, that the 3½ per cents. should be reduced to 2½ per cent.; and even in this case, if the reduction should be delayed beyond an early and limited period, there would be no gain, but sure and certain loss.

It appearing, therefore, that the only inducement held out to the fundholder to accept 5 per cents. consisted in the extended guarantee against a reduction of interest, so does this utterly destroy every argument against Mr. Hume's Resolutions. For, in giving the option to the fundholder to take 5 per cents. under this extended guarantee in place of 3½ per cents., the government must have been supposed to deal justly and fairly: but the transaction could only have been fair upon the hypothesis that the government contemplated the probability of a further reduction of the 3½ per cents., not only to 3 per cent., but even to 2½ per cent. In short, that the transaction should be equal and fair as regarded the subscribers to the 5 per cents., the government must have contemplated a reduction of the 3½ per cents. to 3 per cent. in 1845, and a further reduction to 2½ per cent. in 1855, or some other combination of reductions which should be equivalent.

And, therefore, the case stands thus: either the government of 1830 did or did not contemplate the probability of making these reductions.

In one case, the proposition to take 5 per cents. in place of 3½ per cents. was a mere trick and a cheat, and therefore cannot be adduced as an example.

In the other, there is an end of the argument; and the very example of 1830, which is brought forward against a loan in 3½ per cents., proves that the administration of that period contemplated the probability of a reduction, not only to 3 per cent., but even to 2½ per cent., which is beyond Mr. Hume's Resolutions, for they go only to 3 per cent.

Now, the second supposition appears to us to be the only true one: for it is not easy to imagine that the government would consciously and deliberately make a proposition to the fundholder, which should have the effect of robbing him of a large amount of property, and which clearly would have been the case unless they had contemplated the extreme probability of a reduction of the 3½ per cents. There is then an end of the argument: for, upon the supposition that the 3½ per cents. should be reduced to 3 per cent. in 1845, and again to 2½ per cent. in 1855, the gain on a loan in 3½ per cents. as proposed by Mr. Hume, in comparison with the present loan, will be as follows:—

In comparison with that part of the loan which consists of Long Annuity it will be	£314,385
And, in comparison with the remainder of the loan	787,664
	£1,102,049

The whole being calculated and reduced into present value, according to the principles laid down in Note 1.

Note (6), referred to at page 179.

The slave-owners of the Island of Barbadoes, the Cape of Good Hope, the Mauritius, &c., having been compensated by means of payment in stock, and not in money, it may be as well to see whether this turned to their prejudice.

And, first, of the Island of Barbadoes. The stock, which was equivalent to the claims of this island, amounted, as we have shown, to a capital of 1,753,967*l*. in 3½ per cent. Reduced, and the value of this stock in money, clear of all dividend, was 1,721,346*l*.

Deducting the mean price of the 3½ per cent. Reduced from the price of the 28th of February and 31st of August, in each year, from 1835 to 1838 (with exclusion, however, of the price in February, 1835), we find it to be 98*l*. 6*s*. per cent. clear of all dividend. And so that the value of the 1,753,967*l*. in 3½ per cent. Reduced, at this mean price, is 1,724,150*l*. in money.

The cost, therefore, of this stock to the slave-owners of the Island of Barbadoes being 1,721,346*l*., and the sum for which they either did or might have sold it being 1,724,150*l*., it is plain that they gained 2,804*l*. by being paid in stock instead of in money.

With respect to the compensations for the Cape of Good Hope, the Mauritius, &c., the matter stands this way:—

These compensations were made in 1836 in 3½ per cent. Reduced.

The amount of stock, clear of all dividend, that was equivalent to these compensations, was 3,474,827*l*., and the value of this stock in money, at the price charged by the government, was	£3,432,974
On the other hand, the mean price of 3½ per cent. Reduced, from 1836 to 1838, was 98*l*. 6*s*. 3*d*. per cent., at which price the value of the 3,474,827*l*. is	3,416,189
	£ 16,785

And, therefore, by being paid in stock instead of in money, the slave-owners of the Cape of Good Hope, the Mauritius, &c., sustained a loss of 16,785*l*.

This, as regards the slave-owners of the Island of Barbadoes, the Cape of Good Hope, &c., whose claims were satisfied in stock, and not in money. Let us now see what would have been the situation of the slave-owners of the Island of Jamaica if, instead of being compensated in money by means of the present loan, they had been compensated by means of the creation of 3½ per cent. Reduced stock at the price charged to the planters of the Island of Barbadoes, being the price of the 3rd of August, 1835, the date of the present loan.

The price so charged was 98*l*. 2*s*. 10*d*. per cent., clear of all dividend, at which price the sum of 15,000,000*l*., the amount of the present loan, is equivalent to a capital in 3½ per cent. Reduced, of 15,284,029*l*.

And which, at the mean price from 1835 to 1838 of 98*l*. 6*s*. per cent., would have sold for a sum of . . .	£15,024,200
The sum charged	15,000,000
	£ 24,200

And, therefore, while great advantages would have resulted to the public from a payment in stock instead of in money, yet this would not have operated to the prejudice of the planters, but, on the contrary, they would also have been gainers.

Let us now see what would have been the situation of the slave-owners of the Island of Jamaica, if, instead of being paid in money by means of the present loan, they had been paid in New 3½ per cents. at par, with dividend from the 5th of July, according to the first suggestion of Mr. Hume.

The capital in New 3½ per cents., which, at 100 per cent., and dividend from 5th July to 3d August, is equivalent to 15,000,000*l.* in money, is 15,040,869*l.* clear of all dividend.

And the mean price of New 3½ per cents., from 1835 to 1838, being 99*l.* 3*s.* 1*d.* per cent. clear of dividend, this capital of 15,040,758*l.* would have sold for a sum in money of £14,913,648

Sum charged 15,000,000

Loss . . £ 86,352

And, therefore, the suggestion of Mr. Hume might have been adopted in its full extent, and all the enormous advantages, which we have enumerated, might have been secured to the public; and yet the loss to the slave-owners, as compared with a payment in money by means of the present loan, would have been only 86,352*l.*: a sum so trifling in a matter of this magnitude as to be altogether undeserving of notice.

Let us now see the result, upon the supposition that the slave-owners of the Island of Jamaica, instead of being paid in money by means of the present loan, had been paid in consols at the market price of the 3rd of August, being the day on which the loan was taken.

The quotations of the prices of consols under this date are 90¼ ⅝, 89¾, and therefore the highest price being 90⅝, and the lowest 89¾, this gives a mean price of £90 3 9

Which being reduced into a decimal fraction, is 90·187500

Deduct

The accrued dividend, which is the $\frac{29}{184}$ of 1*l.* 10*s.* . . . . . ·236413

Less 155 days' discount at 1⅛ per cent. . . . . . ·003346

·233067

89·954433

And consequently the price, clear of dividend, was 89*l.* 19*s.* 1*d.* per cent., at which price the sum of 15,000,000*l.* in money is equivalent to a capital, in 3 per cent. stock, of . . £16,675,109

The present loan, including the discount actually paid, in consequence of the proceedings of the Bank, is equivalent to a capital, in 3 per cent. stock, of . 17,658,320

Difference . . £983,211

And, therefore, the gain to the public, by paying the Jamaica planters in 3 per cent. consols instead of in money, would have been a perpetual annuity of 29,496*l.*, issuing out of a capital of 983,211*l.* in 3 per cent. stock, the value of which, at 89*l.* 19*s.* 1*d.* per cent., is 884,439*l.*

Let us now see what would have been the situation of the planters if the payment had been so made in 3 per cent. stock instead of in money.

The mean price of consols from 1835 to 1838 was 91*l.* 0*s.* 5*d.* per cent., clear of dividend, at which price the capital of 16,675,109*l.*, which the planters would have received in satisfaction of their claims, would have produced a sum of

would have produced a sum of	£15,177,823
Cost	15,000,000
Gain	£ 177,823

And, therefore, while so great an advantage was made by the public, the planters would also have been gainers to a pretty considerable amount.

And, therefore, in whatever light we view the matter it always appears that, in liquidating the claims of the Island of Jamaica, two very serious errors were committed; and they are both in the principle. The first arises from having satisfied these claims in money instead of in stock. The second that the money was borrowed in stock of a low denomination.

We will now make one more calculation, and show the profit made by the subscribers to the present loan, according to the market prices of the different descriptions of stock of which the loan consisted on the day of the contract—the 3rd of August, 1835.

The loan consisted of the following several amounts and descriptions of stock:—

£	
101,875	Long Annuity
3,750,000	3 per cent. Reduced
11,250,000	3 per cent. consols

And the following are the respective prices on the 3rd of August, 1835:—

	Highest.	Lowest.	Mean.
Long Annuity .	16¾ .	16⅝ .	£16 13 9
Reduced . .	91 .	90⅜ .	90 13 9
Consols . .	90⅝ .	89¾ .	90 3 9

At the price of 16*l*. 13*s*. 9*d*. the 101,875*l*., Long Annuity, would have produced		£1,700,039
At 90*l*. 13*s*. 9*d*. per cent. the 3,750,000*l*. Reduced would have produced		3,400,781
And at 90*l*. 13*s*. 9*d*. per cent. the 11,250,000*l*. consols would have produced		10,146,094
		£15,246,914
Cost to the subscribers	£15,000,000	
Less discount	298,125	
		14,701,875
		£545,039

And, therefore, the profit to the subscribers, according to the market prices of the 3rd of August, 1835 (the date of the contract), is 545,039*l*. Not that we either do or can complain of this, because the same thing would have occurred in a loan in new 3½ per cents., according to Mr. Hume's resolutions. And that nothing material may be left unsaid, we will now see how the two loans square to each other in this particular; and, as we have cast out the profit on the present loan, we will in like manner and upon the same principle state the profit on the loan in new 3½ per cents., according to Mr. Hume's resolutions.

The price of this loan is 97 per cent., at which price the sum of 15,000,000*l*. in money is equivalent to a capital in stock of 15,463,918*l*.

The highest price of new 3½ per cents. on the 3rd of August, 1835, was 98¾, and the lowest 98⅜, and therefore the mean price is 98*l*. 11*s*. 3*d*. per cent.

At this price the capital of 15,463,918*l*. would have produced		£15,241,624
Cost to the subscribers	£15,000,000	
Less discount	297,085	
		14,702,915
Profit		538,709
Profit on the present loan		545,039
Difference		£6,330

And, therefore, the two loans offer so nearly the same advantages to the subscribers, that there is only this very insignificant difference of 6,330*l*. in the profit; a difference so trifling, that in all discourse upon the matter it may be wholly neglected.

Inasmuch, therefore, as the same profit would have been made by the subscribers to a loan in new 3½ per cents., according to Mr. Hume's resolutions, as by the subscribers to the present loan, and that the same loss would also have resulted to the government in both cases from the unjustifiable proceedings of the Bank of England,—so is it manifest that the detail is the same in both cases, and that the difference between the two loans is only in the principle.

APPENDIX I.

A Copy *of Contract for the Loan of* £15,000,000, *to be raised under the authority of the Act* 3 & 4 Will. IV. c. 73, *for the compensation to the Owners of Slaves; with Proceedings and Tenders respecting the same.*

Treasury Chambers, 25*th July*, 1835.

Gentlemen,—I beg to inform you, and request you will make it known in the usual manner, that on Wednesday next, at 11 o'clock, Lord Melbourne and I shall be ready to see any gentleman who may be desirous of contracting for a loan, under the provisions of an Act passed in the 3rd and 4th years of his present Majesty's reign for the Abolition of Slavery.

We shall then inform the parties the amount which will be required, and the time and manner of the bidding; and I hope it will be convenient to you, or one of you, to meet those gentlemen here at the appointed hour.

I have the honour to be,
Gentlemen,
Your most obedient Servant,
(Signed) T. Spring Rice.

To the Governor and Deputy Governor of the Bank of England.

Treasury Chambers, 29*th July*, 1835.

Proceedings at the Preliminary Meeting respecting the Loan of 15,000,000*l.* proposed to be raised, under the authority of the Act 3 & 4 Will. IV. c. 73, for the Compensation to Owners of Slaves.

The following gentlemen attended this meeting, in consequence of the Chancellor of the Exchequer's letter to the Governor and Deputy Governor of the Bank of England of the 25th inst., to hear the terms proposed for the said loan:—

Messrs. Rothschild, Montefiore, Sir J. R. Reid, Messrs. Irving, Baring, Mildmay, J. L. Goldsmid, Ricardo, Robertson, Hobhouse, Ward, &c. &c.

The Chancellor of the Exchequer observed, that, in the arrangements which had been determined upon by the Lords of the Treasury for giving effect to the intentions of Parliament on this subject, it had been their earnest desire to accomplish the object in such a manner, as whilst full justice was done to the persons entitled to compensation, care should also be taken to produce the least disturbance or pressure in the money market, and to avert any inconvenient alterations in the state of the circulation.

The measures proposed were—

1. To contract for a loan of 15,000,000*l.*, and to spread the instalments over a period ending on the 13th September, 1836.

2. To give to those claimants, to whom payments should not be immediately made from money in hand arising from the instalments, certificates bearing interest, payable to bearer at the Bank of England; these certificates to be specifically charged upon the instalments of the loan, and also receivable at the Bank as part of the subsequent instalments on which they are specifically charged.

The Chancellor of the Exchequer then stated, that it was proposed to give for every 100*l.* subscribed in money, the amount of 75*l.* stock Three per Cent. Consols, 25*l.* Three per Cent. Reduced, and to receive the biddings for the further amount in Long Annuities, expiring 5th January, 1860.

The interest on the Three per Cent. Reduced and Long Annuities to commence from 5th April, 1835.

The interest on the Three per Cent. Consols to commence 5th July, 1835.

An allowance of discount, at two per cent. per annum, in the usual manner.

No reserve for public companies.

The days of payment to be as follows:—

			£.
1835.	Deposit, 6th August	10 per cent.	1,500,000
	16th October	10 per cent.	1,500,000
	13th November	7½ per cent.	1,125,000
	11th December	7½ per cent.	1,125,000
1836.	13th January	10 per cent.	1,500,000
	9th February	9 per cent.	1,350,000
		54	£8,100,000

	Brought forward	54	£8,100,000
1836. Deposit,	11th March	9 per cent.	1,350,000
	12th April	9 per cent.	1,350,000
	10th May	6 per cent.	900,000
	14th June	5 per cent.	750,000
	12th July	8 per cent.	1,200,000
	16th August	5 per cent.	750,000
	13th September	4 per cent.	600,000
		100	£15,000,000

The biddings to be made on Monday next at this office, at 10 o'clock.

As it was several years since a public loan had been contracted for, the Chancellor of the Exchequer said, he thought it right to inform the parties that, on the morning of the bidding, the usual course would be observed by his laying on the table, previously to opening the tenders, a sealed paper containing the highest terms that the Lords of the Treasury would feel they should be justified in acceding to; and that, in the event of the annuity asked for, in the several proposals, exceeding the amount specified in the sealed paper, it would in such case be opened, and the amount in it declared.

With reference to the remaining sum of 5,000,000*l.* to complete the West India grant of 20,000,000*l.*, but which is not raised by the present loan, the Chancellor of the Exchequer said it would not be necessary for him to make any arrangement for raising 3,300,000*l.* of that sum in the present Session of Parliament, in consequence of the claims from the Mauritius and the Cape not coming into course of payment for a considerable time; and, in respect to the money for Barbadoes, it stood upon a distinct footing from the rest, the Act for that colony having been declared by the King in Council to be inadequate and unsatisfactory. Powers, therefore, would be taken, in an Act of the present Session, to write in the amount of stock in the books of the Bank of England, which would be eventually transferred to the claimants of Barbadoes, but which would not, in any contingency, come upon the market otherwise than gradually, and in proportion as the several claims of the proprietors are affirmed by the adjudication of the Commissioners.

To the Right Honourable the Chancellor of the Exchequer.

Honourable Sir,—We hereby engage to take the Loan for 15 millions sterling, at, say—

75 Consols.
25 Reduced Three per Cents.
and 14*s*. 11*d*. Long Annuity, 1860.

We are,
Honourable Sir,
Your obedient Servants,
(Signed) N. M. Rothschild,
Moses Montefiore.

Fourteen shillings and eleven-pence Long Annuity.
London, 3rd August, 1835.

Sealed Paper laid upon the Table previously to opening the Tender:—

Thirteen shillings and seven-pence Long Annuity.

(Signed) Melbourne.
T. Spring Rice.

Treasury Chambers, 3rd Aug., 1835.

Whitehall Treasury Chambers, 3rd Aug., 1835.

We hereby engage with the Lords Commissioners of His Majesty's Treasury to subscribe the sum of 15 millions in money, for the Loan proposed to be raised under the authority of the Act 3 & 4 Will. IV. c. 73, for the Compensation to Owners of Slaves.

For every 100*l*. subscribed to receive 75*l*. Stock in the Three Pounds per Centum Consolidated Annuities; 25*l*. Stock in the Three Pounds per Centum Reduced Annuities; and 13*s*. 7*d*. Long Annuities, expiring the 5th January, 1860.

The interest on the Three Pounds per Cent. Reduced Annuities, and Long Annuities, to commence from the 5th day of April, 1835; and on the Three Pounds per Cent. Consolidated Annuities, from the 5th day of July, 1835.

A discount, at the rate of two pounds per centum per annum, to be allowed after the payment of the deposit on the whole money, advanced at any time on or before the 15th of August, 1836, beyond the instalments up to the latest period of them, in the usual manner.

For payments in full, made on or before the 7th October or 2nd April, the dividends on the Three Pounds per Cents. Reduced Annuities and the Long Annuities, becoming due on the 10th October and the 5th April, will be paid on those days; and for payments in full, made on or before the 2nd January and the 2nd July, the dividends, becoming due on the 5th January and the 5th July, will be paid on those days.

The days of payment to be as follows, viz.:—

1835.	Thursday,	6th August,	deposit of	£10	per cent.
		16th October,	payment of	10	„
		13th November,	ditto	7½	„
		11th December,	ditto	7½	„
1836.		13th January,	ditto	10	„
		9th February,	ditto	9	„
		11th March,	ditto	9	„
		12th April,	ditto	9	„
		10th May,	ditto	6	„
		14th June,	ditto	5	„
		12th July,	ditto	8	„
		16th August,	ditto	5	„
		13th September,	ditto	4	„
				100	

N. M. Rothschild.
Moses Montefiore.

Witness,
James Pattison, Governor.
T. A. Curtis, Deputy Governor.

These terms are accepted by the undersigned,—

Melbourne,
T. Spring Rice,
Seymour,
W. H. Ord,
R. Steuart,
R. More O'Ferrall.
Lords Commissioners of the Treasury.

Witness,
James Pattison, Governor.
T. A. Curtis, Deputy Governor.

Whitehall Treasury Chambers,
3rd August, 1835.

T. Baring.

APPENDIX II.

ON THE CURRENCY, AND PEEL'S BILL.

To the Editor of the Times.

> "If any principles are demonstrable by reason and experience they are, that paper money is an interruption to productive industry; that industry is the main source of wealth; and that whatever diminishes production is injurious to the lenders of capital."—*Address of Governor Walcott to the Legislature of Connecticut.*
>
> "Whether paper shall continue to supply the defect of money, or whether we shall hang up all those who profess the trade of bankers (which latter I am rather inclined to do), must be left to wiser politicians."—*Swift.*

SIR,—It seems pretty evident from some of your late City articles that the Bank directors have turned again to their old courses, and that the fluctuations in the quantity of money during the last two years have, in consequence, been very considerable; but this has ever been, and ever will be, the case when the currency of a country, instead of being—where it naturally ought to be—in the hands of the people at large, is placed under the control and management of banks of credit, which either belong to private individuals or to certain companies and associations of individuals, and which issue paper money for private and particular benefit. All these banks are naturally and necessarily ruled by the same principle; and the never-failing consequence of this principle is, that when paper money is not wanted it overflows, and when, on the contrary, it really is required, it cannot be obtained. It is the thorough conviction of the enormous mischiefs that ever have resulted, and ever must result, to the public, from large masses of paper money issued for the benefit of certain individuals or bodies of men that induced us, after much earnest thinking, and a near and careful survey of the subject in many aspects, to suggest a few years ago in your journal that no other paper money should be allowed to circulate than a national paper money, of which the amount should be fixed, invariable, and moderate. The consequences of this plan would be—1st, That to all the extent of this national paper money, that profit, which is now made by certain individuals and bodies of men, would be made by the public. 2nd. All the losses sustained by the failures of the issuers of private paper money, and which in this country have been enormous, would be saved to the public. 3rd. That this national paper money being not only moderate, but also fixed and invariable in its amount, there could not possibly be any other variation in the total quantity of money than that which would arise from a variation in the quantity of specie; and this, from the very nature of things, being slow and gradual and of limited extent, all those great and violent changes and fluctuations, which now so frequently take place through the operations and for the benefit of the paper issuers, would be prevented. 4th. The issue of a national paper money not at all requiring that there should be a national bank, and as in consequence of the prohibition to the issue of private paper money the trade of a banker would be carried on altogether with real capital,—so does it follow that all that obstruction to, and interference with, the affairs of individuals, which now takes place by means of the issues of private paper money, would be prevented.

If a national paper money should be objected to, we then propose that no notes, either of the Bank of England or any other person or persons, should be allowed to circulate of a less denomination than 20*l.*; and if the prohibition were to extend to all notes under 50*l.* it would be still better. This, by diminishing the quantity of paper money, would lessen the chance of its abuse.

But the best plan of all would be, not to have any paper money whatever, either national or private, seeing that all paper money must necessarily set limits to industry; whereas, under a metallic currency, labour and industry have full scope and latitude.

It is also very plain that, under any paper system whatever, it is impossible there should, for any length of time together, be a plentiful currency: for, if the paper be inconvertible, the moment it exceeds a moderate limited amount it becomes depreciated, and then it is at once impossible that money should be abundant, because the more paper is issued the greater is the depreciation; and at every step and stage of the proceeding, the diminution of the value being in a greater ratio than the increase of the quantity, it clearly follows that, after having increased the quantity five, ten, twenty, thirty-fold, or in any other proportion, there is less value (and consequently less money) than if it had remained at its original moderate limit. The history of every inconvertible paper money in the world yields numerous examples of the truth of this observation; and it is particularly verified in the history of the French assignats, which, when first issued, were, in some cases and for certain purposes, at a small premium, as compared with specie: at length, however, the quantity was so multiplied that it cost 2400 francs in assignats to pay for a breakfast of 15 sous; and in some instances they were pasted together and sold by the yard. The same thing, though in a lower degree, had place in our own currency during the restriction, as will be seen from the following statement.

In the year 1810 the currency of this country stood as follows:—

Circulation of the Bank of England . .	£22,541,000
Ditto of the country bankers . . .	21,374,000
Depreciated silver coin and Bank tokens .	4,500,000
Gold currency	Nil.
	£48,415,000

The average price of gold in 1810 was 4*l*. 4*s*. 10*d*. per oz., which gives a value of 18*s*. 4½*d*. for the Bank of England note, and therefore the real value of the 48,415,000*l*. was 44,430,848*l*.

The following is the state of the currency in 1813:—

Circulation of the Bank of England . .	£24,023,000
Ditto of the country bankers . .	22,342,000
Depreciated silver coin and Bank tokens .	4,500,000
Gold currency	Nil.
	£50,865,000

The average price of gold during this year was 5*l*. 6*s*. 2½*d*. the oz., which gives a value of 14*s*. 8*d*. for the Bank of England note; and therefore the real value of the above-mentioned 50,865,000*l*. was 37,303,000*l*.

And, therefore, though there was nominally 2,450,000*l*. more, yet in reality there was 7,129,848 less money in 1813 than in 1810. It is easy, therefore, to see that, with an inconvertible paper money, it is altogether impossible to have an abundant currency, unless such paper money be very limited and moderate in amount, or unless it be allowed to circulate at a discount; in neither of which cases will it interfere with the circulation of the precious metals. And here was the great fault of our system during the restriction. The Bank note was depreciated, and yet the law required that it should pass at its full nominal value; and then it was in the very nature of things that money should be scarce—because, first, it is impossible that money should ever be abundant by means of an inconvertible paper money alone; and next, it is impossible that sound metallic money should circulate in company with paper money which, although depreciated, is still required by law to pass at the same value as the precious metals.

With an inconvertible paper currency it is, therefore, impossible that money should be abundant, unless the amount of such paper currency be very moderate, or that, when multiplied to excess, it be allowed to circulate at a discount. Neither, if the paper be convertible and payable in specie on demand, can there regularly and permanently be an abundant currency; because those who make money abundant by issuing for their own profit more paper than is required for the affairs of the community, always, sooner or later, become alarmed for the probable results of their own operations, and then they immediately retrace their steps and call in their issues, and then the abundance of money ceases. But it is not so with a metallic currency, which may be multiplied to any extent without creating the least alarm or leading to the least inconvenience: on the contrary, as the precious metals are a universal equivalent, and that at all times and in all places all things may be had in exchange for them, so is it clear that, under a metallic currency, to increase the quantity of money is to increase the wealth of the community, whereas all the paper money in the world will never add one farthing to the common stock.

This argument is supported by facts. The French make their metallic currency amount to 3,583,000,000 fr., which, in round numbers, is 142,000,000*l.* sterling, and this is probably an over-estimation, but it cannot be less than 100,000,000*l*, which, added to 10,000,000*l.* of paper money, makes the total of the French currency amount to 110,000,000*l.* sterling; whereas the currency of this country does not much exceed 50,000,000*l.*, as will appear from the following statement:—

Average circulation of the Bank of England during the present year, 1835	£18,550,000
Average circulation of the English country bankers and the joint-stock banks during the same period	10,680,000
Gold currency, about	14,000,000
Silver currency	8,500,000
	£51,730,000

And, therefore, the quantity of money in France exceeds that of this country by upwards of 58,000,000*l.* sterling; and if the component parts of the currency of each country, respectively, be taken into the account, the difference is still more remarkable. In France the amount of the metallic currency is 100,000,000*l.*, while in this country it does not exceed 22,500,000*l.*, and, therefore, in the article of money alone, the wealth of France exceeds that of this country by about 80,000,000*l.* If the rate of interest be then taken at 4 per cent., it will be seen that the productive classes in France pay a tax of 400,000*l.* per annum to the issuers of 10,000,000*l.* of paper money, whereas, at the same rate of interest, the English productive classes pay a tax of 1,169,200*l.* per annum to the issuers of about 29,230,000*l.* of paper money; and this point is so plain that it may hardly be contested, because the formal efficient cause of paper money being debt,* while a metallic currency is the effect of labour and industry, this puts so wide a difference between them that there must necessarily inhere in the primary original concoction of the one a perpetual claim for interest, which cannot by possibility exist in the other; and then comes this consideration, that the mere expense of a paper currency cannot be less than ½ per cent. per annum, whereas the loss by wear and tear (abrasion) of a metallic currency, and the expenses of coinage and re-coinage, do not exceed 10 per cent. in a century, or $\frac{1}{10}$th per cent. per annum, and so that the bare expense of 30,000,000*l.* of paper currency is annually 150,000*l.*, whereas the annual expense of 30,000,000*l.* of metallic money is only 30,000*l.**

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* Not only does it originate in debt, but the money itself is a debt which the banker owes to the holder of his note, and yet upon the very debt that he owes does the banker get interest. Now, that interest should be paid on a debt is, in many cases, most plainly reasonable; but that the debtor should receive interest on the very debt which he owes, and that the more he multiplies his debts, and the longer they remain unpaid, the more his income shall be increased,—is not merely strange doctrine, but is so clearly against plain sense and all common honesty, that it is out of doubt that the dealings of a banker who issues paper, and does not carry on his transactions by means of real capital, are against good conscience, and have no foundation in the truth and reason and equity of things. Talk, indeed, of the abuses of paper money!—the thing itself is the great abuse—its very principle is a lie and a cheat.

And, therefore, a paper currency, even when well regulated and perfectly solvent, acting as a drawback on the resources of the community, by setting limits to labour and industry, and the consequence thereof being that the community pay an annual tax to the issuers of paper for interest, which tax derives from the original creation and existence of the paper, while no such tax inheres in, or derives immediately and originally from, a currency of the precious metals,—so is it visible that, to all the extent of the interest paid to the issuers of paper, *minus* the loss, by wear and tear, of a metallic currency, is the best regulated and most solvent paper currency in the world dearer than a metallic currency. Now the loss, by wear and tear, of a metallic currency, is $\frac{1}{10}$th per cent. per annum, and therefore, if the rate of interest be taken at 5 per cent., it will follow that a metallic currency is 49 times cheaper than a paper currency; at 4 per cent. it is 39 times cheaper; and at 3 per cent. it is 29 times cheaper; and not one word of this may be contradicted,—for when a country, by means of its labour and industry (which is the only price paid for all things), acquires a metallic currency, it does not merely acquire money, but it acquires wealth—treasure; it acquires a commodity for which all things may at all times be obtained, and if it uses this commodity as money this is done for three reasons—1. To give that consistency, stability, and regularity to the affairs of the community which cannot, in the same full and perfect degree, have place under any other system; 2. To prevent the enormous losses and all the ruinous consequences which have always flowed, and necessarily must flow, from paper currency; 3. To be relieved from a tax which must otherwise be paid to the issuers of paper money.

But the power to perform the functions of money does not deprive the precious metals of their quality of wealth, and this is the reason why, in France and many other industrious communities where paper money is not allowed to usurp the place, but merely comes in aid, of the precious metals, there is so large a quantity of metallic money: it is not accumulated merely as money, but as wealth, and as a sure and ready means whereby all things, as occasion requires, may be obtained.

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* This deserves to be noted: the metallic money of Europe is probably of the value of 300,000,000*l.*, and yet the waste, by wear and tear, of this enormous mass may be repaired, and the money maintained in its original purity and integrity, by the annual extraction from the mines and importation into Europe of only 300,000*l.* of the precious metals; and all that is imported beyond this may be used for plate and ornaments, and in various branches of manufacture, or it may be re-exported to other divisions of the earth; and what is not required for all or any of these purposes may be employed to increase the quantity of money.

And, therefore, it is indubitably clear and infallibly certain that, by the substitution of a metallic for a paper currency, first, the productive classes are relieved from a tax which they must otherwise pay to the paper-mongers; and, next, by means of the slow, silent, patient exercise of industry the community gradually acquires a large mass of wealth in metallic money; and this wealth is not only in the most opportune and convenient shape, but, containing no seeds of decay, it is also pure, simple, indefectible; and, while it represents and is virtually and adequately a stock of corn, wine, oil, and every other commodity, whether of necessity, convenience, or luxury, it is in itself comparatively imperishable and incorruptible.

Now all this, be it noted, is true, and has place even with reference to the most perfect system of paper currency that it is possible for the wit of man to devise—a paper money that is always convertible into cash, always prudently administered, and always solid and solvent; what then shall it be when we reflect on the enormous losses which are entailed on the community, as well by the failure and insolvency of those who issue the paper, as by their frequent devices to expand and contract their issues, according as it may square to their own views and advantage, and that consequently there are periods when all trade is gambling, and all the affairs of the community nothing but continual agitation and unsettledness;—when these things, we say, are marked and pondered, and particularly when we bring to mind that, in point of fact, it cost this country upwards of 220,000,000*l.** in the period of 30 years—from 1797 to 1826—in order to retain and keep in circulation the paltry sum of 40,000,000*l.* of paper money, must we not come to the conclusion that this is a scheme of things which is most completely destructive of the best interests of the community?

The truth of this argument, and the greater abundance of money under a metallic, as compared with a paper, currency, will yet further appear if another fact be considered. Previous to the restriction on cash payments, which took place in 1797, the currency of this country was much more abundant than during the great height and prevalence of the paper system, as will appear from the following state and particulars of the currency in the year 1795:—

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* This is proved by Mr. Page, and all the particulars are fully set forth in an article which was inserted in *The Times* on the 22nd of August, 1832.

Circulation of the Bank of England . .	£11,755,960
Ditto of the country bankers, about . .	5,000,000
Gold currency	40,000,000
Silver currency	6,000,000
	£62,755,960

The period after the restriction, when the paper system was in its greatest vigour, was from 1810 to 1818, when the currency of the country stood after the following manner:—

Average circulation of the Bank of England from 1810 to 1818	£25,437,555
Average circulation of the country bankers .	19,802,333
Depreciated silver currency and Bank tokens .	4,500,000
Gold currency	Nil.
	£49,739,888

And, therefore, even by tale and number, pound for pound, the amount of the currency, previous to the Restriction Act, was greater by 13,000,000*l.* (that is, upwards of 26 per cent.) than during the height and power of the paper system. But the thing does not stop here, and the power and efficiency of all money being in a direct ratio with its real, and not with its nominal, value, it must now be considered that the average price of gold during the period from 1810 to 1818, both inclusive, was 4*l.* 11*s.* 9½*d.* the oz., which gives a value of 16*s.* 11¾*d.* for the Bank of England note; and therefore the real value of the above-mentioned 49,739,888*l.* of paper money was 42,227,093*l.*, which is upwards of 20,500,000*l.* less than the currency previous to the restriction; and, therefore, if certain commodities were at high prices during the great vogue of the paper system, this was not because money was abundant, but because the money with which these commodities were compared was base and depreciated. And, indeed, the great scarcity of money, and the exorbitant rate of interest, during the paper system, are notorious; and it frequently was not only impossible to borrow money for longer than a day, even upon unexceptionable security, but money was also regularly borrowed for parts of a day; and, as to the rise in the rate of interest after the restriction, this will be seen in the following fact:—From 1793 to 1796 inclusive, being four years before the restriction, the Government borrowed money by public loan at the average rate of interest of 4*l.* 13*s.* 5*d.* per cent.; but from 1797 to 1801, being five years after the restriction, the average rate of interest paid by the Government for money raised by public loan was 5*l.* 10*s.* 3*d.* per cent., being a difference of 16*s.* 7*d.* per cent., which answers to a capital of 27*l.* 12*s.* 9*d.* in a 3 per cent. stock. The suspension of cash payments appears, therefore, to have been of no advantage to the Government, but the reverse; and, indeed, during the whole period of the restriction, the paper system, so far from assisting, was highly prejudicial to the operations of the Government. For the rest, much error and exaggeration prevail respecting the prices of commodities during the restriction, and it is most certain that all the great and violent fluctuations in the prices of commodities which then took place arose from causes and circumstances which had not the slightest connexion with the currency; and it is never considered that, while some commodities were extremely dear, others were equally cheap. Thus, in the year 1801, the average price of wheat was 118*s.* 3*d.*, and in 1803 it was 56*s.* 6*d.* the quarter. But the average circulation of the Bank of England in 1801 was only 15,734,082*l.*, while in 1803 it was 16,773,120*l.*; and therefore, though there was more money in 1803 than in 1801, yet there was a fall of more than 50 per cent. in the price of wheat. And in 1803 the average price of barley was 24*s.* 10*d.* the quarter, which is greatly below the average since the passing of Peel's bill in 1819. So, again, in 1810 the average price of wheat was 106*s.* 2*d.* the quarter, and in 1815 it was 64*s.* 4*d.* the quarter. But the average circulation of the Bank of England in 1810 was only 22,541,000*l.*, while in 1815 it was 26,886,000*l.* Here, therefore, is an increase of about 20 per cent. in the quantity of money, and yet a reduction of 40 per cent. in the price of wheat. Instances of the like kind might be multiplied. Now, take the article of sugar. In the year 1803 the average price of white Havannah sugar for exportation was 71*s.* the cwt., while the average price of wheat was 56*s.* 6*d.* the quarter: in the year 1811 it was 43*s.* 6*d.* the cwt., while the average price of wheat was 94*s.* 6*d.* the quarter; and in 1815 it was 93*s.* the cwt., while the average price of wheat was 64*s.* 4*d.* And, therefore, when there is a comparatively high price of wheat there is a comparatively low price of sugar; and, contrariwise, when the price of sugar is comparatively high, the price of wheat is comparatively low. Now, the same currency cannot produce a fall in one or more classes of commodities and a rise in others; and, therefore, the contemporaneous rise in some commodities, and the fall in others, during the prevalence of the paper system, must be sought for in other causes,—and here the cause may easily be discovered: with a good harvest this country produced a sufficiency of corn for its consumption; but when the harvest was deficient, and it became necessary to have recourse to foreign importations, such were the impediments to our foreign commerce, and such in consequence the enormous freights and charges, that a much higher price was required in the home market in order to insure a foreign supply than would have been necessary if the importation had taken place in a period of peace and free intercourse. The same cause which occasionally produced high prices of corn, and other articles of importation, had a contrary effect on colonial produce, and other articles of exportation. The situation of the Continent was precisely the reverse of this country: the commodities which were dear in England were cheap on the Continent, and those which were cheap in England were dear on the Continent, and this without referense to any particular currency, either in this country or in any other, but when reduced into one common standard of value; and, therefore, it is quite clear, that this state of things could have no connexion with any system of currency whatever, but that it resolved itself into a question of let and hindrance to commercial intercourse.

It may not, however, be denied that to the extent of the depreciation in the value of the Bank of England note, that is, to the extent of the difference between the market and the Mint price of bullion, and the fall in the foreign exchanges, the prices of all commodities without distinction must have been affected; and to this extent did the resumption of cash payments, by means of Peel's Bill in 1819, enhance the value of the currency, with the further addition of that enhancement which ensued from the substitution, by the Act of 1816, of a gold standard; but which Act of 1816 would have remained inoperative, but for the general resumption of cash payments by means of Peel's Bill.

Now, considering the state of the foreign exchanges in 1819, previous to the passing of the Act for the resumption of cash payments, the enhancement in the value of the currency must have amounted to about 9 per cent.; and neither, in the truth and reason of things, could it, nor did it, in point of fact, go beyond this, as we may, perhaps, take occasion to show hereafter.

By what has been stated, it therefore appears that the period when the currency of this country was most abundant was prior to the suspension of cash payments; and that it was then about 13,000,000*l*. more than during the height of the paper system, even by tale and in nominal value, and upwards of 20,500,000*l*. more in real value.

It also appears that the present amount of our currency is 2,000,000*l*. more than during the height of the paper system, even by tale and in nominal value, and upwards of 9,500,000*l*. more in real value.

And, finally, it appears that to multiply paper is not to make money abundant; for though in 1813 there was 2,400,000*l*. more paper than in 1810, yet there was upwards of 7,000,000*l*. less money; and though, again, in the period from 1810 to 1818, there was upwards of 1,000,000*l*. more paper than in 1810, yet there was upwards of 6,000,000*l*. less money.

We may, therefore, easily descry that all paper money, whether convertible or inconvertible, halts at a certain point; and that in this, as in every other matter, there is in the nature of things themselves that which will not be imposed upon; which baffles all mere flashy illusory conceits, and sets bounds to the devices and follies of mankind.

And now, upon the whole matter, it appears that, besides all the other defects inherent in a paper system, it is altogether impossible, under this system, regularly and permanently to have an abundance of money; and therefore we come to this conclusion—that, in order to secure a currency, which shall at the same time be both solid and abundant, we must put our paper currency upon a safe and satisfactory footing, and so that it shall occasionally come in aid, and not regularly usurp the place, of the precious metals.

16*th October*, 1835. DANIEL HARDCASTLE.

N.B. The prices of wheat and sugar in particular years, to which allusion is made in the preceding letter, are taken from *Tooke on High and Low Prices*.

The state of the currency during the restriction is taken from the Report of the Lords' Committee in 1819, on the question of the resumption of cash payments by the Bank of England.

That the gold currency of this country, previous to the restriction, was upwards of 40,000,000*l*., is proved by the late Mr. George Rose, in a speech delivered in the House of Commons on the 6th of May, 1811, and afterwards published. The same thing is also shown by Mr. Page, in an article which was inserted in *The Times*, of the 22nd of August, 1832; and it is again, in good measure, confirmed by certain returns made to the Foreign Office, on a motion of Mr. Hume's. If the matter were completely investigated, we believe it would appear that the quantity of gold in this country, previous to the restriction of 1797, even exceeded the amount of 40,000,000*l*. stated by Mr. Rose and Mr. Page.

The cause of this large quantity of gold existing in England being very plain, we are not to make it matter of wonder. It was this:— During the greater part of the last century, and up to the period of the French Revolution, the Mint regulations of this country not only fixed the relative of gold to silver much higher than the mint regulations of any other country in Europe, except Spain, but higher also than consisted with the reason of things, and the real relative value between the two metals.

There being consequently always a comparative advantage in the importation of gold, and always a comparative disadvantage in its exportation, the quantity would necessarily accumulate.

APPENDIX III.

Table of the Revenue and Population of the United Kingdom, from 1801 to 1838, both inclusive, divided into four periods.

Year.	Net Produce of the Revenue in Paper.	Price of Gold per Ounce.		Produce of the Revenue in Gold.	Population.	Taxation per Head.		
	£.	s.	d.	£.		£.	s.	d.
1801	34,113,146	83	7	31,777,048	16,388,102	1	18	9.367
1802	36,368,149	83	6	33,918,199	16,592,236	2	0	10.613
1803	38,609,392	87	10	34,619,920	16,798,913	2	1	2.602
1804	46,176,492	80	0	44,949,929	17,008,165	2	12	10.283
1805	50,897,706	80	0	49,545,736	17,220,023	2	17	6.532
1806	55,796,086	87	10	49,470,246	17,434,520	2	16	8.997
1807	59,339,321	87	0	53,115,513	17,651,689	3	0	2.181
1808	62,998,191	85	3	57,548,201	17,871,563	3	4	4,824
1809	63,719,400	90	9	54,679,320	18,094,176	3	0	5.263
1810	67,144,542	84	10	61,637,106	18,319,562	3	7	3.492
Average	51,516,242	85	0¾	47,126,122	17,637,895	2	13	5.248
1811	65,173,545	97	7	52,010,826	18,547,720	2	16	0.999
1812	65,037,850	101	8	49,817,527	18,796,715	2	13	0.079
1813	68,748,363	106	3	50,338,506	19,049,051	2	12	10.847
1814	71,134,503	101	8	50,553,436	19,304,776	2	12	4.488
1815	72,210,512	92	10	60,575,156	19,563,934	3	1	11.104
1816	62,264,546	80	6	60,234,184	19,826,571	3	0	9.133
1817	52,055,913	79	7	50,938,482	20,092,734	2	10	8.441
1818	53,747,795	81	3	51,515,194	20,362,511	2	10	7.177
1819	52,648,847	79	2	51,789,839	20,635,870	2	10	2.328
1820	54,282,958	77	10½	54,282,958	20,912,899	2	11	10.960
Average	61,730,483	89	10	53,210,611	19,709,278	2	13	11.895
1821	55,834,192	77	10½	55,834,192	21,193,548	2	12	8.278
1822	55,663,650	,,		55,663,650	21,482,931	2	11	9.855
1823	57,672,999	,,		57,672,999	21,776,265	2	12	11.624
1824	59,362,403	,,		59,362,403	22,073,604	2	13	9.434
1825	57,273,869	,,		57,273,869	22,375,003	2	11	2.334
1826	54,894,989	,,		54,894,989	22,680,518	2	8	4.886
1827	54,932,518	,,		54,932,518	22,990,205	2	7	9.453
1828	55,187,142	,,		55,187,142	23,304,120	2	7	4.351
1829	50,786,682	,,		50,786,682	23,622,322	2	2	11.986
1830	50,056,616	,,		50,056,616	23,944,868	2	1	9.719
Average	55,166,506	77	10½	55,166,506	22,544,338	2	8	11.286
1831	46,424,440	77	10½	46,424,440	24,271,763	1	18	3.046
1832	46,988,775	,,		46,988,775	24,603,177	1	18	2.368
1833	46,271,326	,,		46,271,326	24,939,116	1	17	1.289
1834	46,302,128	,,		46,302,128	25,279,642	1	16	7.583
1835	46,043,663	,,		46,043,663	25,624,817	1	15	11.241
1836	48,702,654	,,		48,702,654	25,974,705	1	17	6.001
1837	46,475,194	,,		46,475,194	26,329,371	1	15	3.635
1838	47,333,460	,,		47,333,460	26,688,879	1	15	5.647
Average	46,817,705	77	10½	46,817,705	25,463,964	1	16	9.262

REMARKS.

In the construction of the preceding Table it will be seen that, as regards the annual amount of taxation,—the net produce of the revenue—the sum actually paid into the Exchequer has been taken. It would have been more correct to have taken the gross produce, because it is this which is actually paid by the people; but we were not furnished with the particulars for the whole period.

The calculations regarding the population are founded on the following particulars:—

By the census of 1801 it appears that the population of the United Kingdom was 16,388,102.

By the census of 1811 it was 18,547,720.

By the census of 1821 it was 21,193,548.

And by the census of 1831 it was 24,271,763.

And therefore the increase between 1801 and 1811 is 2,159,618; and as population increases in a geometrical ratio, upon the principle of money at compound interest, so is this a mean annual increase of 1·245626 per cent., it being demonstrable that, at this rate, 1 will increase in 10 years to 1·317798; and therefore 16,388,102 (the population of 1801) will increase in the same period to 18,547,720 (the population of 1811).

If we make the calculation upon the principle of 2,159,618 several and distinct additions to the population in equable portions of time throughout the ten years (which is the same thing as if money should increase at compound interest by means of a payment of the interest 215,962 times in a year, at equable intervals of time),—then the mean annual rate of increase during the 10 years is 1·237898 per cent.: but this makes no difference in the final result, inasmuch as 1·237898 per cent. upon the principle of 215,962 distinct additions to the population in the course of a year, at equable intervals of time, gives precisely the same results as 1 245626 per cent. in one single addition, to be made at the end of each year respectively. This as regards the increase from 1801 to 1811.

The mean increase from 1811 to 1821 is 1·342455 per cent. by yearly increase, and 1·3334838 per cent. upon the principle of 264,583 distinct additions in a year, at equable intervals of time.

The mean increase from 1821 to 1831 is 1·365428 per cent., by yearly increase, and 1·3561501 per cent. upon the principle of 307,821 distinct additions in a year, at equable intervals of time.

As there has been no census since 1831, the rate of increase from 1831 to 1838 is taken to be the same as from 1821 to 1831.

With respect to taxation in general, this principle is to be laid down—that the weight and burden of all taxation is the result of a compound ratio of wealth and population, and that it does not rely on wealth alone, or on numbers alone, but on wealth and numbers combined: for, let the whole community be represented by 10 individuals, let each individual have an income of 100*l.* per annum, and let the taxes amount to 200*l.* per annum,—there will then be a collective income of 1000*l.*, proceeding from 10 equal individual incomes of 100*l.* each; the taxes will amount to 20 per cent. on the income, both collectively and distributively; and each individual, after paying his tax, will have 80*l.* over for his own use and enjoyment.

Then let the collective income increase to 1200*l.*, and distributively in the same proportion, while the number of individuals and the amount of the taxes remain the same,—and then, though each individual continues to pay the same sum of 20*l.* as before, and that the sum raised collectively is still the same as before, yet the tax will be only 16*l.* 13*s.* 4*d.* per cent. on the amount of the income, both collectively and distributively, and each individual, after paying his tax, will have 100*l.* over, instead of 80*l.*, as in the former case.

And now let the numbers increase, while wealth increases in the same proportion, and so that, the number being increased to 12 individuals, with each an income of 100*l.*, while the amount of taxes remains the same, there will be a collective income of 1200*l.* to sustain a charge of 200*l.*, and then the tax will amount to 16*l.* 13*s.* 4*d.* per cent. on the income, both collectively and distributively, and each individual, after payment of his tax, will have 83*l.* 6*s.* 8*d.* over for his own use and enjoyment, instead of 80*l.* as in the first case.

And therefore a burden which, in the first case, was 20 per cent. on the income, is reduced in the second to a burden of 16*l.* 13*s.* 4*d.* per cent.; and this is the effect of an increase of wealth collectively, while the number of the population remains unchanged.

In the second case a burden of 20 per cent. is in like manner reduced to a burden of 16*l.* 13*s.* 4*d.* per cent.; and this is the effect of an increase of numbers, while wealth increases in the same proportion.

And therefore it cannot, we believe, be gainsaid, that the burden of all taxation is the result of a compound ratio of wealth and population, but still so as that, with an increase of wealth, collectively, attended with a proportionate increase of population, the absolute pressure of taxation is diminished much less than with the same collective increase of wealth while the population remains the same;

but, in the proportional pressure, the reduction in both cases is precisely the same.

The principle that the burden of all taxation is in a compound ratio of wealth and numbers will be found of great use in practice, seeing we are thereby furnished with a sure and ready method to determine the state and condition of the community. For suppose taxation generally, or the tax on any one article of universal use and consumption, always to remain the same, then, as population increases, if the produce of the taxes generally, or if this particular tax, should not increase in the same proportion, we have an infallible proof that, though there may be an increase of wealth collectively, yet, this not being in proportion to the increase of numbers, there is distributively less wealth than before; and then, while the people have increased in numbers, they have declined in prosperity; because all public prosperity consists in measure and proportion—in the distributive portion of the necessaries, conveniences, and amusements of life, which, in the supposed equal division of the whole mass, falls to the lot of each individual; and therefore it is well and shrewdly observed by Voltaire —" Le point principal n'est pas d'avoir du superflu en hommes, mais de rendre ce que nous en avons le moins malheureux qu'il est possible."

What we have here said may very easily be devised into plain case and example.

Let there be 10 lbs. of meat prepared for the dinner of ten individuals, and there will be 1 lb. for the share of each individual. This is the first position. The second position shall be this:—

Let the quantity of meat be increased to 12 lbs., while the number of individuals remains the same, and there will then be 1⅕lbs. for each individual. This, as compared with the first position, depicts an increase of wealth, as well collectively as in the distribution.

Third position:—Let the quantity of meat, as in the second case, be 12 lbs., but let the number of individuals who are to partake of it be increased to twelve, and then, as compared with the first case, the quantity of meat having increased precisely in the same degree and proportion as the number of individuals, the share of each individual remains without alteration. This is the case of an increase of public wealth taken collectively, but which produces no change in the distributive quantity.

Fourth position:—Let the quantity of meat, as in the first case, be 10 lbs., while the number of individuals is increased to twelve, as in the third position, and then instead of 1 lb., as in the first case, the share of each individual will be reduced to 13⅓ ounces. This depicts the case of an increased population, while the aggregate quantity of public wealth remains the same; and the proportionate quantity which, upon an equal division, would fall to the share of each individual being thereby diminished, this is a declining state of things.

And, now, if we would apply what is here said, and deduce the state and condition of the people from the produce of the taxes, let us, as before, suppose the whole community to be represented by ten individuals; that each individual has an income of 100*l.* (which makes a collective income of 1000*l.*); and that the government imposes taxes on certain commodities of general use and consumption, and which taxes in this state of things produce a sum of 200*l.*

Then, let the number of individuals increase to twelve, while the income of each individual is the same as before, and then—the taxes being imposed on articles of general consumption—as each individual would have the same inclination to consume as before, and that each would also have the same ability, so is it certain that, in consequence of the increase of numbers while wealth increased in the same proportion, the produce of the taxes would increase from 200*l.* to 240*l.*

Now, take a third case; and while the number of individuals is increased, as in the second case, from ten to twelve, let the collective income still remain at 1000*l.*, as in the first case. As the proportionate income of each individual would then be reduced from 100*l.* to 83*l.* 6*s.* 8*d.*, so does it appear most certain that not only would there be no increase in the produce of the taxes arising from the increase of numbers, but it is moreover highly probable that the produce would fall short of the original amount of 200*l.*; and therefore the increase of numbers, so far from adding to the strength of the state, would diminish its resources.

We might multiply cases; but the above are sufficient to illustrate the principle we have laid down, that—keeping always in view that the produce of the same taxes ought regularly to increase in proportion to the increase in the population—the condition of the people may always be pretty accurately determined from the state of the revenue.

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